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ABSTRACT

Intended to help produce safe, competent California school bus drivers, this document contains instructor's materials for a bus driver education course with eight sequential skill levels, including a final appraisal. The first section contains the curriculum's purpose and objectives, the California standards for a state-certified bus driver instructor, the California standards for a delegated behind-the-wheel trainer, and general guidelines for selection of training sites. In addition, information is provided on vehicle inspection training, brake system inspection training, and undercarriage training. Copies of a driver's inspection report and a driver's performance review also appear. Each of the next eight sections contain materials for one of the following skill levels: (1) basic vehicle familiarization; (2) precision training in vehicle movement and driving fundamentals; (3) transmission control and shifting procedures; (4) general defensive driving techniques; (5) specialized defensive driving techniques; (6) passenger loading and unloading procedures; (7) emergency procedures; and (8) final appraisal. The first seven sections each contain a table of contents, purpose and objectives, a note to the instructor, a glossary of terms, an outline of content to be taught, and a sheet on which the instructor can record the trainee's demonstrated competence at each task covered. The final appraisal section includes the purpose and objectives of the appraisal, advice to instructors on being tough but fair, final appraisal procedures, and a form on which to document the final appraisal. (CML)

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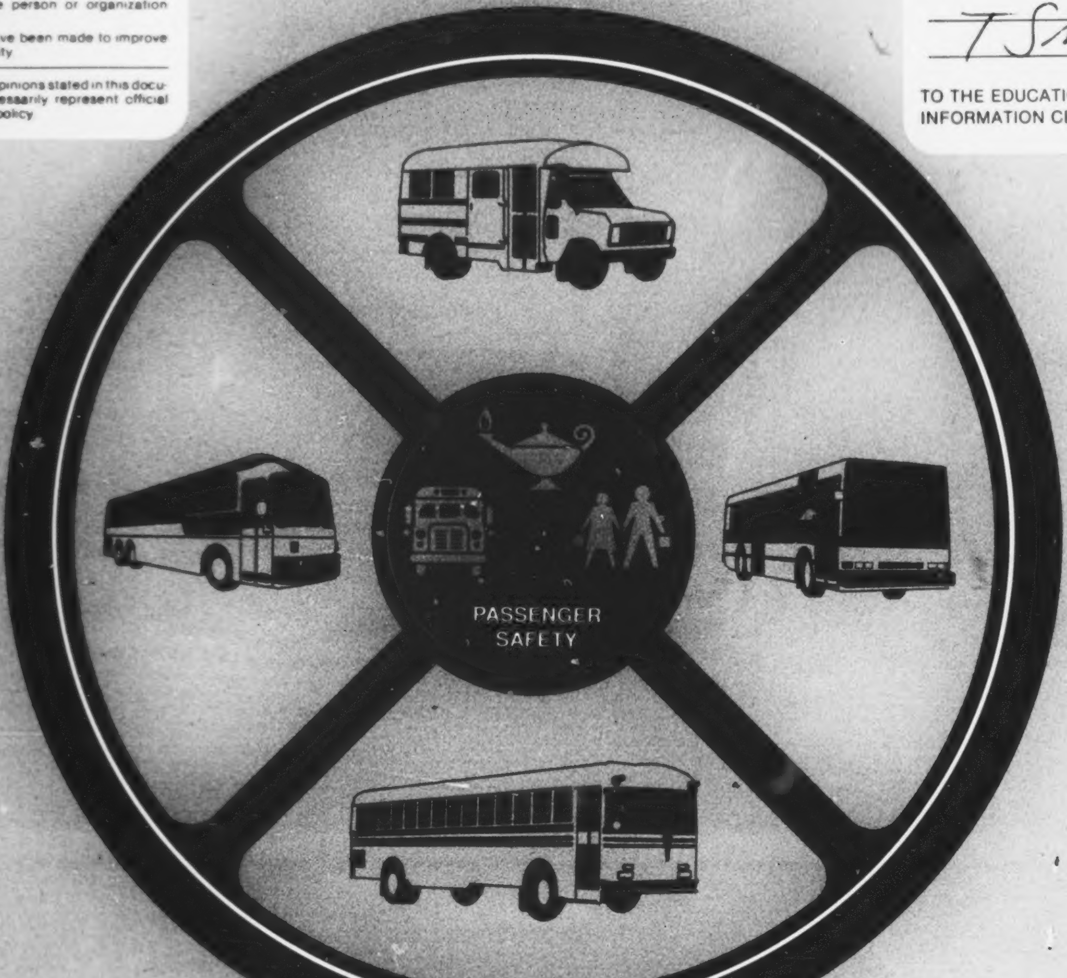

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Sacramento, 1989

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Instructor's Behind-the-Wheel Guide for California's Bus Driver's Training Course

Prepared under the direction of

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California State Department of Education

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PREFACE

The Instructor's Behind-the-Wheel Guide for California's Bus Driver's Training Course has been developed to assist instructors in their endeavor to produce safe, competent bus drivers.

The guide is divided into eight skills levels, with the last level being a final performance appraisal. Each trainee must become competent in the requirements of vehicle inspection before progressing to the more complex technical driving skills and, finally, to the vehicle operational skills.

Each skills level contains a driver performance review that will enable the instructor to monitor time spent with the trainee on each lesson. The performance review also has a sign-off column that the instructor initials when the trainee demonstrates competency in each area. The trainee must be proficient in each skills level before advancing to the next level.

The guide is designed with a column that will provide ample space for the instructor to make notes in preparation for the instruction.

ROBERT AGEE Deputy Superintendent Field Services Branch	RON KINNEY Supervisor School Transportation

ACKNOWLEDGMENTS

The development of this guide required the cooperation of many people. Without their dedication and support, this project could not have been completed.

In January, 1987, 92 state-certified bus driver instructors were invited to the California Highway Patrol Academy in West Sacramento to review and critique the first draft of the Instructor's Behind-the-Wheel Guide. Their recommendations, which are reflected throughout the guide, are sincerely appreciated.

This publication was prepared under the direction of Ron Kinney, Supervisor of School Transportation, with technical assistance provided by Stan DeHart, Instructor/Coordinator; Nikki Hughes, Instructor/Coordinator; Kirk Hunter, Instructor/Coordinator; Larry Sherrill, Instructor/Coordinator; Jim Stewart, Instructor/Coordinator; Jim Wolfe, Instructor/Coordinator; and Gary Roberts, retired. Clerical support was provided by Bonnie Bacon.

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INSTRUCTOR'S

BEHIND-THE-WHEEL GUIDE
FOR
CALIFORNIA'S BUS DRIVER'S TRAINING COURSE

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PURPOSE:

To present standards for training personnel and develop skills necessary to perform preoperational inspections

OBJECTIVES:

1. Provide general standards for state-certified instructors and their delegated behind-the-wheel trainers.
2. Realize the importance of preselected training sites.
3. Prepare the trainee to perform effective vehicle inspection.
4. Instruct the trainee how to understand and perform correct driver inspections of brake systems.
5. Provide guidance in conducting undercarriage training.

Note to the Instructor:

Striving for excellence in our profession is a goal that should be foremost in our minds. The standards by which we conduct training should be of the highest quality.

These same high standards must also be applied to people selected as delegated behind-the-wheel trainers.

In this section you will find vehicle inspection and undercarriage training. These two sections are directly related to the training and development of a professional bus driver. The training time on these two topics is to be recorded in the in-service category on the State Department of Education training certificate, form T-01.

REFERENCE | **CONTENT**

STANDARDS FOR A STATE-CERTIFIED BUS DRIVER INSTRUCTOR

A state-certified instructor is an integral part of any transportation operation. Instructors set the standards and image for many others to follow. State-certified instructors are to be commended for their outstanding accomplishments. The following standards will help maintain the high quality that is necessary in any transportation system.

13 CCR 1204.5

1204.5 Driver Instructor Certificates

(a) Instructor Course. Applicants for a school bus, SPAB, or farm labor vehicle driver instructor certificate must successfully complete the appropriate instructor course given by the Department of Education. Applicants for this course must possess:

(1) A valid driver's license of the appropriate class.
(2) A special driver's certificate valid for driving the vehicle(s) for which the driver instructor rating is sought.
(3) Five years experience as a school bus, SPAB, or farm labor vehicle driver or two years of such driving experience and three years equivalent experience driving vehicles that require a class 1 (A) or 2 (B) driver's license.
(4) A high school diploma or General Education Development (GED) equivalent.
(5) A driving record with no chargeable accidents within the past three years.

The Department of Education may waive any or all of the foregoing requirements if necessary to ensure an adequate number of instructors in the state.

(b) Scope of Instruction. A school bus driver instructor may instruct applicants for a certificate to drive a school bus, SPAB, or farm labor vehicle. A SPAB driver instructor may instruct applicants for a certificate to drive a SPAB or farm labor vehicle. A farm labor vehicle driver instructor may instruct applicants only for a certificate to drive a farm labor vehicle.

(c) Term of Certificate. A driver instructor certificate shall be valid until suspended or revoked if it is accompanied by a valid special driver certificate or is limited to classroom instruction only.

(d) Driver Instructor Training. A driver instructor shall conduct at least 10 hours of instruction in each 12 months that include at least 6 hours of behind-the-wheel or classroom training, which need not be given in a single session. The remaining 4 hours may include in-service training conducted by the instructor.

(e) Limitations. A driver instructor certificate may be limited to classroom instruction or behind-the-wheel training only, depending upon the instructional capability of the instructor.

(f) Suspension or Revocation. The Department of Education may suspend or revoke a driver instructor certificate for cause when the instructor:

(1) Has failed to conduct at least 10 hours of instruction each 12 months as specified in subsection (d).

(2) Has falsified a Department of Education Training Certificate, Form T-01.

(3) Has committed an act listed in 13 CCR, Section 1208.

(g) Suspension or Revocation Hearing. An instructor may, within 10 days after receiving a notice of suspension or revocation of his/her driver instructor certificate, submit to the Department of Education a written request for a hearing.

(1) Upon receipt of such request, an informal hearing shall be conducted within 30 days by the Instructor Revocation Board appointed by the Department of Education. This Board shall consist of four members: a chairperson from the Department of Education and three members representing school bus, SPAB, or farm labor vehicle carriers, dependent upon the instructor rating held by the appellant.

(2) Failure to demand a hearing within 10 days after receiving a notice of suspension or revocation shall be deemed a waiver of the right to a hearing.

Documentation of Training

All instructor training required in 13 CCR, Section 1204.5, shall be properly documented on a State Department of Education Training Certificate, Form T-01, and signed by the certified instructor at the end of each 12-month training period. The signature certifies that the required instruction was conducted during the 12-month training period. On renewal of the instructor's special driver's certificate, the completed instructor's training record, recorded on Form T-01, is to be submitted to the Department in Sacramento. State-certified instructors help their operation understand and comply with the laws and regulations that govern the industry. Other attributes of a state-certified instructor include:

Knowledge

Professional instructors must have an effective command of all state laws and regulations. They also should possess good knowledge of their organization's policies and rules and know how to effectively blend them for a safe and efficient operation.

Skills

The skills that a professional instructor must have are vast. Performance skills in the equipment must be above reproach. The instructor must know and be able to correctly demonstrate all phases of behind-the-wheel training. Setting the proper example and demonstrating correct procedures are essential. Skill areas also will include proper teaching techniques, human relations, good communication skills, being able to recognize something that is wrong or incomplete, and knowing how to apply logic and common sense for a solution. A positive attitude and an open mind are a must. State-certified instructors should constantly strive for excellence. Improvement of knowledge, skills, abilities, attitudes, and so forth, will be ongoing. The challenge of always looking for ways to improve the safe transportation of our children must never cease.

STANDARDS FOR A DELEGATED BEHIND-THE-WHEEL TRAINER

A delegated behind-the-wheel trainer is someone who has been selected and trained to assist in the behind-the-wheel training of bus drivers. Minimum standards for selection are as follows:

1. One year of experience as a school bus driver immediately preceding the date of selection as a delegated behind-the-wheel trainer
2. Possession of the appropriate license, certificate, and endorsement needed to drive and train in a particular type and size vehicle
3. A high school diploma or General Education Development (GED) certificate
4. A driving record with no chargeable accidents within the past three years immediately preceding the date of selection
5. Successful completion of all training in the latest edition of the *Instructor's Behind-the-Wheel Guide for California's Bus Driver's Training Course*
6. Possession of the same basic knowledge and skills as those of a state-certified instructor
7. Successful completion of a written assessment test on current laws, regulations, and policies given by a state-certified instructor of the appropriate class
8. Successful completion of a driving performance test on all phases of behind-the-wheel and vehicle inspection training (The test is to be given by a state-certified instructor of the appropriate class.)
9. On successful completion of all tests, the delegated behind-the-wheel trainer shall receive the appropriate instructor training from a state-certified instructor of the appropriate class.

DELEGATED BEHIND-THE-WHEEL TRAINERS RECEIVE NO T-01 TIME FOR THE HOURS THEY TRAIN.

The state-certified instructor shall train and verify the competence of each delegated behind-the-wheel trainer before he or she will be accepted as a behind-the-wheel trainer. This verification is to be documented and placed in the delegated behind-the-wheel training record file, and a copy is to be sent to the Department of Education's Instructor Training Program in Sacramento.

DRIVING PROFICIENCY AND VEHICLE SELECTION

13 CCR 1229

It is the responsibility of each employer to require all drivers to demonstrate competent and safe operation of each different type of vehicle before driving on a highway unsupervised. This includes vehicles of different sizes, with different controls, gauges, or requiring different driving skills. The driver's capability to operate the vehicle shall include special equipment such as wheelchair lifts, ramps, or wheelchair tie downs.

To prevent restrictions and limited use of a potential driver, the employer should use a variety of vehicles throughout the behind-the-wheel training program. By using this procedure, the employer and trainee will get the maximum benefits from the behind-the-wheel training and, when the driver is certified, he or she will be qualified on all buses in the fleet.

GENERAL GUIDELINES FOR SELECTION OF TRAINING SITES

The selection of a site for training drivers is a very important part of an effective behind-the-wheel training program. In selecting a site, remember that the trainee lacks experience behind the wheel of a bus and probably lacks experience behind the wheel of any large vehicle. The trainees must learn to properly start, stop, shift gears, and become accustomed to the length and width of the vehicle. In addition, the trainee must learn to make right and left turns, to back the vehicle, to use the mirrors, and to do many other things. The trainees should not have the additional burden of having to deal with any type of hazard in the training area.

REFERENCE	CONTENT

Find a location that is as free of hazards as possible. The ideal place to begin training would be a large area that is isolated from heavy traffic, such as a large parking lot, a fairground, an abandoned airfield, a deserted subdivision, an industrial park, or a little-used country road.

If you must use the streets or frequently traveled roadways, try to find a straight, level road. If at all possible, use a road with a solid shoulder.

Avoid areas that have hills, narrow bridges, sharp turns, ditches close to the road, heavy traffic, crossroads, or any obstruction to a driver's vision, such as trees and poles.

You may have to travel some distance to find the ideal location, but the trouble will be well worth the effort. Your trainees will learn faster when they do not have to compete with hazards and distractions while learning to drive.

VEHICLE INSPECTION TRAINING

The following lesson has been designed to allow the trainee to progress toward competency in performing a daily inspection. The daily inspection is a method for the driver to locate defects that will affect the vehicle's safe operation. The job of an instructor is to teach the trainee the requirements in the regulations pertaining to daily inspection and explain the importance of why each item is being inspected. It is vital that the trainee learn how to inspect the vehicle, not memorize a list of items. It will be the instructor's responsibility to arrange the inspection in a logical sequence to help the trainee learn the inspection in a timely manner. On completion of training, the trainee should perform a complete vehicle and brake inspection within 30 minutes.

Vehicle Condition

It is unlawful for any driver to drive a vehicle that is not in safe operating condition or is not equipped as required by all provisions of law and regulation. The driver is specifically responsible for the following:

13 CCR 1215 (a) Daily Inspection. Prior to operation, the driver shall inspect each vehicle daily to ascertain that it is in safe condition, that it is free of litter, that it is equipped as required by all provisions of law, and that all equipment is in good working order.

The inspection shall include but is not limited to:

I. All Gauges, Indicators, and Warning Devices
  A. Gauges (Additional gauges may be required.)
    1. Oil - Check for normal reading
    2. Ammeter or voltmeter - Proper charging
    3. Air
    4. Vacuum
    5. Temperature
    6. Fuel
  B. Indicator Lights
    1. Turn signal
    2. Four-way flashers
    3. Red crossover lamps (school bus only)
    4. High beams
  C. Warning Devices (Additional warning devices may be required.)
    13 CCR 1281.1 1. Emergency exits - Audible and visible
    2. Low oil - Audible and visible
    3. Low air or vacuum - audible and visible
    4. Low coolant - audible and visible (if equipped)

NOTE:

Prior to training, determine the proper operating range for all gauges on each training vehicle. Explain to the trainee the purpose and operating range of each gauge, indicator light, and warning device and their importance to the safe operation of the vehicle.

REFERENCE	CONTENT
VC 27000	D. Horns 1. Electric 2. Air, if equipped
13 CCR 1270	II. Driver's Seat and Seat Belt A. Driver's seat - Check for proper securement and adjustment to ensure a correct driver posture. The trainee must be taught proper positioning. B. Seat belt - Check for proper adjustment. Determine type, self-adjusting or nonself-adjusting, and instruct the trainee on proper operations. **NOTE:** The driver's seat on a Type 1 bus shall be readily adjustable backward and forward and up and down; on a Type 2 bus, at least backward and forward.
13 CCR 1284	III. All Doors, Door Emergency Releases, and Windows A. Entrance door - Check for proper operation. B. Emergency doors and windows - Check for ease of operation and proper lettering. **NOTE:** All emergency exits should operate in such a manner that they can be opened by pupils transported in the event of an emergency.
13 CCR 1278 (c)	IV. All Seats, Handrails, and Modesty Panels A. Passenger seats - Check seat backs and frames for securement. Check seat cushions for securement. B. Handrails - Check for securement. C. Modesty panels - Check for securement.
13 CCR 1217	V. Interior and Exterior Lighting System A. Interior lighting 1. Dome and step lights - Check illumination and condition of lenses.

Dome lights are required to provide sufficient lighting when passengers are boarding or exiting the bus during hours of darkness and when otherwise deemed necessary.

2. Dash and map lights - Check operation. These lights are vital when operating a bus during hours of darkness and when otherwise deemed necessary.

B. Exterior lighting

1. Headlights
    - 13 CCR 1225 a. Headlights must be on at all times when transporting pupils.
    - b. High beams must be working properly.
2. Brake lights -They should be brighter than taillights.
3. Taillights - Check for adequate illumination or brightness.
4. Backup lights - They should illuminate an area to the rear of the bus when backing.
5. Turn signals - They indicate the direction the vehicle is preparing to turn.
6. Four-way hazard lights - Hazard lights should be used when the vehicle is disabled on the highway. They also may be used during a backing movement.
7. Clearance lights - These lights define the height and width of the vehicle at night.
8. Red crossover lamps (school bus only) - Check for proper aiming and hoods or covers. Do not obscure the lamp from visibility.

NOTE:

Because of their continuous use, it is not uncommon for one or both headlights to fail. Therefore, the high beams may be used during daylight hours if the low beams fail.

VI. All Heating, Cooling, and Ventilating Systems

13 CCR 1259 A. Heaters and defrosters - Check fan operation on all speeds and check the airflow at all speeds.

REFERENCE | **CONTENT**

B. Cooling and ventilating systems - Check the same as heaters and defrosters, if equipped.

VII. All Glass and Mirrors, Including Adjustment of Mirrors

A. All glass - Check all glass to ensure it is clean, not cracked or broken.

B. Mirrors - Check all mirrors. Ensure that they are clean, free of cracks, tightly secured to the vehicle, and adjusted in a manner that allows the driver the greatest visibility possible.

NOTE:

Trainees must be taught what proper mirror adjustment is. It is important that they know what they can and cannot see when the mirrors are properly adjusted.

VIII. Windshield Wipers and Washers

A. Windshield wipers - Check operation on all speeds. Check wiper blades for splitting or cracking. Also, check that the wiper arms are secure.

B. Washer - Check fluid level and ensure that it is operational.

IX. All Required Emergency Equipment

13 CCR 1243

A. First-aid kit

1. Every school bus, youth bus, and farm labor vehicle shall carry a readily visible, accessible, and plainly marked first aid kit.
2. The kit shall be constructed to prevent dust and moisture from reaching the contents and maintained in good condition. The kit shall be removable from the place secured.
3. The required contents of a school bus first-aid kit and the required number of units (determined by the number of passengers a school bus is designed to carry) are shown on the following chart. Each youth bus and farm labor vehicle shall be equipped with a 10 unit first aid kit.

Unit	Number of Passengers 1-16	17-42	43 or more
1-in. adhesive compress	1	2	2
2-in. bandage compress	1	2	2
3-in. bandage compress	1	1	2
4-in. bandage compress	1	1	2
Eye dressing packet (3 cotton eye pads, 3 sets adhesive plastic strips)	---	---	1
Plain gauze pads (3x3 in.)	1	1	1
Gauze roller bandage (2 rolls, 2 in. x 6 yds)	1	1	2
Plain absorbent gauze (½ sq. yd.)	1	2	4
Plain absorbent gauze (24 x 72 in.)	1	2	3
Triangular bandages (40 in.)	1	3	4
Tourniquet, scissors, tweezers	1	1	1
TOTAL UNITS	10	16	24

B. Fire extinguisher

13 CCR 1242

1. Gauge - For indicating proper charge
2. Pin (if equipped) and/or seal - To guard against accidental discharge
3. Bracket - For securing the extinguisher
4. Inspection tag - Dated within last 12 months
5. Location sign - If extinguisher is not visible
6. Proper size and type

13 CCR 1292
VC 25300

C. Reflectors - Three reflectors in good working order

NOTE:

A wheelchair school bus shall be equipped with two fire extinguishers, each one rated at not less than 8 B:C. One is to be placed in the driver's compartment and the other at the wheelchair-loading door or emergency exit.

REFERENCE | **CONTENT**

X. All Tires, Wheels, and Lug Nuts

  A. Tires

    1. Front - Check for proper tread depth (4/32 inch minimum); check the sidewalls for cracks and bulges; and ensure that the valve stems do not touch the brake drums.
    2. Rear - Check for proper tread depth (2/32 inch minimum); check the sidewalls for cuts and bulges; and ensure that the valve stems do not touch the brake drums.
    3. Wheels - Check for cracks.
    4. Lug nuts - Check for missing or looseness.
    5. Grease or oil seals - check for leaks.

NOTE:

Check with your mechanic to determine the direction the lug nuts are to be tightened on each vehicle.

XI. Engine Compartment and Fluid Levels

  A. Engine compartment

    1. Belts - Check all belts for overall condition; and check for wear, cracks, and adjustment.
    2. Hoses - Check the overall condition of the hoses; and check for wear, cracks, leaks, and swelling.
    3. Fuel cap - Ensure that the cap is properly secured.

  B. Fluid levels

    1. Oil - Check for proper level of oil.
    2. Coolant - Check for proper level of coolant.
    3. Power steering - Check for proper level of fluid.

NOTE:

Show the trainee what the proper fluid levels are. Also, explain how many quarts of oil are required between the add and full mark on the dipstick.

REFERENCE	CONTENT
	XII. Certificates A. Vehicle inspection certificate - Ensure that the most recent inspection is dated within the last 13 months and check the vehicle capacity. B. Vehicle registration C. Proof of insurance **NOTE:** Make sure the trainee knows where the registration and proof of insurance are located.
	XIII. Vehicle Exterior A. Body damage - Make note of any body damage prior to operation.
13 CCR 1256 VC 27906	B. Signs and markings - Ensure that all signs and markings are complete and legible.
	XIV. Special Equipment A. The above vehicle inspection is designed to cover all equipment. However, some vehicles are equipped with special equipment to meet the needs of specific passengers. Therefore, any special equipment your vehicle may have must be included in the above inspection.
13 CCR 1204 SDE, T-01	Vehicle Inspection Note Under California regulation, vehicle inspection instruction time is not credited as part of the actual behind-the-wheel training. Behind-the-wheel instruction shall be credited to applicants only for the period of time they are in physical control of the vehicle being used for training and such instruction is in the presence of a certified instructor of the appropriate class or the instructor's delegated behind-the-wheel trainer.

BRAKE SYSTEM TRAINING

The brake systems included are:

I. Air Brakes
  - A. Dual air system (spring brakes)
  - B. Manual or modulated air system (spring brakes)
  - C. Automatically actuated air system (spring brakes)
  - D. Dual air system (air-applied system DD3)
  - E. Manual (air-applied system DD3)
  - F. Automatically actuated (air-applied system DD3)
  - G. Manual/modulated (air-applied system DD2)

II. Hydraulic Brake Systems
  - A. Hydraulic system with vacuum booster
  - B. All other hydraulic brake systems with power brake boosters

REFERENCE	CONTENT

DUAL AIR SYSTEM

All buses in U.S. were equipped with the dual air system by April 1, 1977. Some manufacturers were producing this system as early as 1975.

The inspection of a dual air system suggested by the Department of Education's Instructor Training Program exceeds California state law. The research and study the Department has conducted on this brake system indicate the system cannot be completely checked without draining and separating the system. Therefore, it is suggested that each operation equip its buses with drain valves so a complete brake inspection can be performed without crawling under the vehicle.

DUAL AIR SYSTEM (Spring Brakes)

THIS INSPECTION PROCEDURE MAY EXCEED MINIMUM LEGAL REQUIREMENTS.

1. Start engine to build up air pressure.
2. When system cut-out pressure is reached, note the pressure (max. 130 psi).
3. Apply service brake pedal enough times to allow the system air pressure to drop and the air governor to cut in (min. 85 psi); then allow the system to build back to maximum.
4. Place vehicle in gear, shut engine off (block wheels, if necessary), and check pressure gauge for one minute and note any pressure drop (2 psi per minute allowed). Tap gauge occasionally to unstick (STATIC TEST).

REFERENCE **CONTENT**

5. Release the parking brake. Allow system time to stabilize; check pressure gauge for one minute and note any pressure drop (2 psi per minute allowed) (STATIC TEST).
6. Apply the service brake all the way down and hold. After the system is loaded, check the pressure gauge for air loss (3 psi per minute allowed). Tap gauge occasionally to unstick (APPLIED TEST).

*7. Reapply parking brake. Turn on ignition (DON'T START ENGINE); release the air in the front service air tank until the low-pressure warning device actuates (max. 75 psi, min. 55 psi).

*See note on following page.

THE AIR MUST BE RELEASED DIRECTLY FROM THE FRONT SERVICE TANK VALVE. DO NOT DEPLETE THE AIR BY REPEATED APPLICATION OF THE FOOT PEDAL AS THIS WILL EXHAUST BOTH THE FRONT AND REAR AIR SUPPLY.

*8. Reduce the air pressure to zero psi; then, release the parking brake, start the engine and immediately move the vehicle, depress the clutch, and apply the emergency stopping system through the service brake pedal.

*9. Allow the air system to build back to approximately 90 psi and repeat steps 7 and 8 for the rear service tank test. THE AIR MUST BE RELEASED DIRECTLY FROM THE REAR SERVICE TANK VALVE.

REFERENCE	CONTENT

10. Allow the air system to build back to approximately 90 psi, release the parking brake and move the vehicle a short distance. Depress the clutch and apply the parking brake.

11. BE FAMILIAR WITH THE EQUIPMENT FOR WHICH YOU ARE RESPONSIBLE.

*NOTE:

13 CCR 1215 states that draining the air reservoir separately in dual air systems is not required by the driver. However, if the reservoirs are not drained separately, both low-pressure warning devices cannot be checked and the emergency stopping system cannot be applied on each individual axle. Therefore the Department of Education recommends that drivers use the brake inspection listed above.

Vehicle Code Section 26506 states that the engine is to be running when testing the low-pressure warning devices; however, checking these devices with the engine off is more stringent. Therefore, the Department of Education recommends that drivers test the low-pressure warning devices with the engine off. If the warning devices fail to activate within the legal limits, the test should be repeated with the engine running and the mechanical staff notified.

This inspection procedure will show that the vehicle brake system is in proper working order and that the emergency stopping system will function properly, if needed.

REFERENCE	CONTENT

MANUAL OR MODULATED AIR SYSTEM (Spring Brakes)

THIS INSPECTION PROCEDURE MAY EXCEED MINIMUM LEGAL REQUIREMENTS.

This system was used from the late 1960s and continued to be in common production until April 1, 1977.

1. Start engine to build up air pressure.
2. When system cut-out pressure is reached, note the pressure (max. 130 psi).
3. Apply service brake pedal enough times to allow the system air pressure to drop and the air governor to cut in (min. 85 psi); then allow the system to build back to maximum.
4. Place vehicle in gear, shut engine off (block wheels if necessary), and check pressure gauge for one minute and note any pressure drop (2 psi per minute allowed). Tap gauge occasionally to unstick (STATIC TEST).
5. Release the parking brake, allow the system time to stabilize, check pressure gauge for one minute, and note any pressure drop (2 psi per minute allowed) (STATIC TEST).
6. Apply the service brake all the way down and hold. After system is loaded, check pressure gauge for air loss (3 psi per minute allowed). Tap gauge occasionally to unstick (APPLIED TEST).

REFERENCE	CONTENT

*7. Turn on ignition (DON'T START ENGINE). Apply the service brake to reduce the system air pressure. Note the pressure at which the low-pressure warning devices actuate (max. 75 psi, min. 55 psi); then turn off ignition.

8. Continue to reduce the air pressure to 20 psi.

   Do not deplete air supply to zero.

9. Start engine and immediately move the vehicle a short distance. Depress the clutch and apply the emergency stopping system.

10. BE FAMILIAR WITH THE EQUIPMENT FOR WHICH YOU ARE RESPONSIBLE.

*NOTE:

Vehicle Code Section 26506 states that the engine is to be running when testing the low-pressure warning devices; however, checking these devices with the engine off is more stringent. Therefore, the Department of Education recommends that drivers test the low-pressure warning devices with the engine off. If the warning devices fail to activate within the legal limits, the test should be repeated with the engine running and the mechanical staff notified.

This inspection procedure will show that the vehicle brake system is in proper working order and that the emergency stopping system will function properly, if needed.

REFERENCE	CONTENT

AUTOMATIC ACTUATED AIR SYSTEM (Spring Brakes)

THIS INSPECTION PROCEDURE MAY EXCEED MINIMUM LEGAL REQUIREMENTS.

This system has been around many years and was used in California until 1968, at which time the manufacturers could no longer equip new buses with this system.

1. Start engine to build up air pressure.
2. When system cut-out pressure is reached, note the pressure (max. 130 psi).
3. Apply service brake pedal enough times to allow the system air pressure to drop and the air governor to cut in (min. 85 psi); then allow the system to build back to maximum.
4. Place vehicle in gear, shut engine off (block wheels, if necessary), and check pressure gauge for one minute and note any pressure drop (2 psi per minute allowed). Tap gauge occasionally to unstick (STATIC TEST).
5. Release the parking brake, allow the system time to stabilize, and check pressure drop (2 psi per minute allowed) (STATIC TEST).
6. Apply the service brake all the way down and hold. After the system is loaded, check the pressure gauge for air loss (3 psi per minute allowed). Tap gauge occasionally to unstick (APPLIED TEST).

*7. Turn on ignition (DON'T START ENGINE); apply the service brakes to reduce the system air pressure. Note the pressure at which the low-pressure warning devices actuate (max. 75 psi, min. 55 psi). Turn off ignition.

8. Continue to reduce the air pressure and note the pressure at which the automatic brake application takes place.

9. Release the emergency stopping system. Start the engine and immediately move the vehicle a short distance. Depress the clutch and reapply the emergency stopping system.

10. BE FAMILIAR WITH THE EQUIPMENT FOR WHICH YOU ARE RESPONSIBLE.

***NOTE:**

Vehicle Code Section 26506 states that the engine is to be running when testing the low-pressure warning devices; however, checking these devices with the engine off is more stringent. Therefore, the Department of Education recommends that drivers test the low-pressure warning devices with the engine off. If the warning devices fail to activate within the legal limits, the test should be repeated with the engine running and the mechanical staff notified.

This inspection procedure will show that the vehicle brake system is in proper working order and that the emergency stopping system will function properly, if needed.

DUAL AIR SYSTEM (Air-Applied System DD3)

THIS INSPECTION PROCEDURE MAY EXCEED MINIMUM LEGAL REQUIREMENTS.

1. Start engine to build up air pressure.
2. When system cut-out pressure is reached, note the pressure (max. 130 psi).
3. Apply the service brake pedal enough times to allow the system air pressure to drop and the air governor to cut in (min. 85 psi); then allow the system to build back to maximum.
4. Place vehicle in gear, shut engine off (block wheels, if necessary), and release parking brake. Check pressure gauge for one minute and note any pressure drop (2 psi per minute allowed). Tap gauge occasionally to unstick (STATIC TEST).
5. Apply service brake all the way down and hold. After the system is loaded, check the pressure gauge for air loss (3 psi per minute allowed). Tap gauge occasionally to unstick (APPLIED TEST).

*6. Turn on ignition (DON'T START ENGINE); apply the service brake to reduce the system air pressure. Note the pressure at which the low-pressure warning devices actuate (max. 75 psi, min. 55 psi) and turn off ignition.

7. Continue to reduce the air pressure and note the pressure at which rear brake application takes place.

*See note on following page.

REFERENCE	CONTENT

8. Start engine, build air pressure up to at least 90 psi, release parking brake, move bus, and apply the emergency stopping system.
9. BE FAMILIAR WITH THE EQUIPMENT FOR WHICH YOU ARE RESPONSIBLE.

*NOTE:

Vehicle Code Section 26506 states that the engine is to be running when testing the low-pressure warning devices; however, checking these devices with the engine off is more stringent. Therefore, the Department of Education recommends that drivers test the low-pressure warning devices with the engine off. If the warning devices fail to activate within the legal limits, the test should be repeated with the engine running and the mechanical staff notified.

This inspection procedure will show that the vehicle brake system is in working order and that the emergency stopping system will function properly, if needed.

MANUAL AIR SYSTEM (Air-Applied System DD3)

THIS INSPECTION PROCEDURE MAY EXCEED MINIMUM LEGAL REQUIREMENTS.

This system was used from the late 1960s and continued to be in common production until April 1, 1977.

1. Start engine to build up air pressure.
2. When system cut-out pressure is reached, note the pressure (max. 130 psi).
3. Apply service brake pedal enough times to allow the system air pressure to drop and the air governor to cut in (min. 85 psi); then allow the system to build back to maximum.
4. Place vehicle in gear and shut engine off (block wheels, if necessary). Release the parking brake, allow the system time to stabilize, check pressure gauge for one minute, and note any pressure drop (2 psi per minute allowed). Tap gauge occasionally to unstick (STATIC TEST).
5. Apply the service brake all the way down and hold. After system is loaded, check pressure gauge for air loss (3 psi per minute allowed). Tap gauge occasionally to unstick (APPLIED TEST).

*6. Turn on ignition (DON'T START ENGINE) and apply the service brake to reduce the system air pressure. Note the pressure at which the low-pressure warning devices actuate (max. 75 psi, min. 55 psi). Then turn off ignition.

*See note on following page.

REFERENCE	**CONTENT**

7. Continue to reduce the air pressure to 20 psi.

   Do not deplete air supply to zero.

8. Start engine and immediately move the vehicle a short distance; depress the clutch and apply the emergency stopping system.

9. BE FAMILIAR WITH THE EQUIPMENT FOR WHICH YOU ARE RESPONSIBLE.

***NOTE:**

Vehicle Code Section 26506 states that the engine is to be running when testing the low-pressure warning devices; however, checking these devices with the engine off is more stringent. Therefore, the Department of Education recommends that drivers test the low-pressure warning devices with the engine off. If the warning devices fail to activate within the legal limits, the test should be repeated with the engine running and the mechanical staff notified.

This inspection procedure will show that the vehicle brake system is in working order and that the emergency stopping system will function properly, if needed.

REFERENCE	CONTENT

AUTOMATIC ACTUATED SYSTEM (Air-Applied System DD3)

THIS INSPECTION PROCEDURE MAY EXCEED MINIMUM LEGAL REQUIREMENTS.

1. Start engine to build up air pressure.
2. When system cut-out pressure is reached, note the pressure (max. 130 psi).
3. Apply service brake pedal enough times to allow the system air pressure to drop and the air governor to cut in (min. 85 psi); then allow the system to build back to maximum.
4. Place vehicle in gear, shut engine off (block wheels, if necessary), and release parking brake. Allow system time to stabilize. Check pressure gauge for one minute and note any pressure drop (2 psi per minute allowed). Tap gauge occasionally to unstick (STATIC TEST).
5. Apply the service brake all the way down and hold. After the system is loaded, check the pressure gauge for air loss (3 psi per minute allowed). Tap gauge occasionally to unstick (APPLIED TEST).

*6. Turn on ignition (DON'T START ENGINE) and apply the service brakes to reduce the system air pressure. Note the pressure at which the low-pressure warning devices actuate (max. 75 psi, min. 55 psi). Then turn off ignition.

*See note on following page.

REFERENCE	CONTENT

7. Continue to reduce the air pressure and note the pressure at which the automatic brake application takes place.
8. Release the emergency stopping system, start the engine, immediately move the vehicle a short distance, depress the clutch, and reapply the emergency stopping system.
9. BE FAMILIAR WITH THE EQUIPMENT FOR WHICH YOU ARE RESPONSIBLE.

*NOTE:

Vehicle Code Section 26506 states that the engine is to be running when testing the low-pressure warning devices; however, checking these devices with the engine off is more stringent. Therefore, the Department of Education recommends that drivers test the low-pressure warning devices with the engine off. If the warning devices fail to activate within the legal limits, the test should be repeated with the engine running and the mechanical staff notified.

This inspection procedure will show that the vehicle brake system is in working order and that the emergency stopping system will function properly, if needed.

REFERENCE	CONTENT

UNDERCARRIAGE TRAINING

An undercarriage training program is designed to help the driver learn to identify basic parts of the vehicle and become familiar with their location and their function in order to achieve a safe and efficient operation. This program will also help the prospective driver begin to learn to identify basic problems if they should occur. This material will also help drivers better understand certain aspects of behind-the-wheel training. It is suggested that an instructor/mechanic team make this presentation.

Items needed for this presentation:

1. A bus (clean if possible)
2. A clean shop area
3. A hoist to raise the bus
4. Sufficient lighting

The following is a general list of items to be discussed:

A. Place the bus on the hoist and raise half way:
    1. Cooling system, radiator, and shutter operation (if applicable)
    2. Location of batteries and main electrical shutoff (if applicable)
    3. Location of air intake to engine
    4. Location of fuel tanks, fuel filters, and so forth
    5. Location of engine oil fill tube and dipstick (Explain proper fill level.)

B. Raise the bus to the top of the hoist and discuss the following:
    1. Location and operation of the steering assembly
    2. Location and operation of brake system components
    3. Location and type of engine
    4. Location of engine accessories (belt or gear driven)
    5. Location of all belts
    6. Location of clutch assembly
    7. Location of transmission
    8. Location of U-joints, driveline, and driveline guard

REFERENCE	CONTENT

ALL OTHER HYDRAULIC BRAKE SYSTEMS WITH POWER BRAKE BOOSTERS

Because of the variety and design of hydraulic power brake systems and the operation of the warning devices, etc., the fleet operation should use the original equipment manufacturer's (O.E.M.) brake inspection information as a guide in developing an effective brake inspection procedure for a particular vehicle. The O.E.M. information can be found in the vehicle owner's manual or can be obtained from the chassis manufacturer.

c. Release clutch slowly to apply load to engine. (To prevent unnecessary damage to the clutch and parking brake, do not kill the engine. The primary goal of this test is to make sure that the parking brake holds.)

6. BE FAMILIAR WITH THE EQUIPMENT FOR WHICH YOU ARE RESPONSIBLE.

REFERENCE	CONTENT

HYDRAULIC BRAKE SYSTEMS WITH VACUUM BOOSTER

1. Start engine and build vacuum to maximum; shut engine off. Check vacuum loss for one minute. (No more than a 3-inch drop is allowed.) Tap gauge occasionally to unstick (STATIC TEST).
2. Apply service brake all the way down and hold. Check vacuum loss for one minute. (No more than a 3-inch drop is allowed.) Tap gauge occasionally to unstick (APPLIED TEST).
3. Turn on ignition (DON'T START ENGINE) and apply service brake to reduce vacuum. Note the point where the low-vacuum warning devices actuate. (MINIMUM OF 8 INCHES MERCURY IS ALLOWED.)
4. Continue to reduce vacuum to zero and hold service brake pedal all the way down and restart the engine. As soon as the engine is running, the service brake pedal should drop down just a little. (This indicates that the vacuum booster is working.)

Should the vacuum booster fail, the primary backup system will be the hydraulic side of the brakes; however, should you have a complete hydraulic failure, the primary backup system will be the parking brake.

5. Perform the Parking Brake Test (with Parking Brake Set).
   a. Place shift selector in one gear higher than the normal starting gear.
   b. Rev engine to approximately 1/3 maximum rpm.

8. Start engine, release parking brake, and immediately move the vehicle a short distance. Depress the clutch and apply the emergency stopping system.
9. Perform the parking brake test (with parking brake set).
    a. Place shift selector in one gear higher than the normal starting gear.
    b. Rev engine to approximately 1/3 maximum rpm.
    c. Release clutch slowly to apply load to engine. (To prevent unnecessary damage to clutch and parking brake, do not kill the engine. The primary goal of this test is to make sure the parking brake holds.)
10. BE FAMILIAR WITH THE EQUIPMENT FOR WHICH YOU ARE RESPONSIBLE.

*NOTE:

Vehicle Code Section 26506 states that the engine is to be running when testing the low-pressure warning devices; however, checking these devices with the engine off is more stringent. Therefore, the Department of Education recommends that drivers test the low-pressure warning devices with the engine off. If the warning devices fail to activate within the legal limits, the test should be repeated with the engine running and the mechanical staff notified.

This inspection procedure will show that the vehicle brake system is in proper working order and that the emergency stopping system will function properly, if needed.

REFERENCE	CONTENT

MANUAL/MODULATED SYSTEM (Air-Applied System DD2)

THIS INSPECTION PROCEDURE MAY EXCEED MINIMUM LEGAL REQUIREMENTS.

1. Start engine to build up air pressure.
2. When system cut-out pressure is reached, note the pressure (max. 130 psi).
3. Apply the service brake pedal enough times to allow the system air pressure to drop and the air governor to cut in (min. 85 psi). Then allow the system to build back to maximum.
4. Place vehicle in gear, shut engine off (block wheels, if necessary), and release parking brake. Check pressure gauge for one minute and note any pressure drop (2 psi per minute allowed). Tap gauge occasionally to unstick (STATIC TEST).
5. Apply the service brake all the way down and hold. After the system is loaded, check pressure gauge for air loss (3 psi per minute allowed). Tap gauge occasionally to unstick (APPLIED TEST).

*6. Turn on ignition (DON'T START ENGINE) and apply the service brakes to reduce the system air pressure. Note the pressure at which the low-pressure warning devices actuate (max. 75 psi, min. 55 psi) and turn off ignition.

7. Continue to reduce the air pressure to 20 psi. Do not deplete air supply to zero.

*See note on following page.

REFERENCE	CONTENT
	9. Location of differential 10. Location of rear suspension Adapt the above guidelines to the type of equipment being used. Adjust the order, if necessary, and add items to the list, as needed.
13 CCR 1204	Under California regulations, undercarriage training is not credited as part of the actual behind-the-wheel training. Instruction time shall be credited to an applicant as in-service training.

BUS NO.
VEHICLE LIC. NO.
WEEK OF
MONTH YEAR

EMPLOYER

DRIVER'S INSPECTION REPORT

13 CCR 1215 (a)

This report is to be completed and signed by each driver assigned to the bus each day. The report form is to remain in the bus until submitted to your supervisor once a week. All defects must be reported, using organizational policy and procedures.

"✓" IF OK
"X" NEED ATTENTION

DAILY DATE:																					
	MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY			SUNDAY		
	D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3	D1	D2	D3
1. Water, oil, and fluid leaks																					
2. Condition of belts and hoses																					
3. All gauges, indicators, & warning devices																					
4. Required certificates																					
5. Horns																					
6. Driver's seat & seat belts																					
7. All doors, door emergency release, & windows																					
8. All seats, handrails, & modesty panels																					
9. Interior and exterior lighting system																					
10. All heating, cooling, & ventilating systems																					
11. All glass and mirrors																					
12. Windshield wipers and washers																					
13. All required emergency equipment																					
14. Tires (pressure and condition)																					
15. Wheels (lug nuts, grease seals, etc.)																					
16. Exhaust system																					
17. Other (unreported body damage, etc.)																					
BRAKES																					
18. Air governor cut-in and cut-out pressure																					
19. Static air pressure loss																					
20. Applied brake pressure loss																					
21. Low air pressure warning devices																					
22. Emergency stopping systems																					
23. Parking brake check																					
24. Antiskid device (if equipped)																					
25. Hydraulic assist (if applicable)																					
26. Vacuum check (legal requirements)																					
27. Low vacuum warning devices																					
28. Check brake pedal for adjustment																					
29. Special education equipment																					
30.																					

I have inspected this bus and found it to be in safe operating condition on the date indicated. Driver is to sign in the appropriate box to the right.

REVIEWED BY: TITLE:

MONDAY
DR. NO. 1 SIG.
DR. NO. 2 SIG.
DR. NO. 3 SIG.

TUESDAY
DR. NO. 1 SIG.
DR. NO. 2 SIG.
DR. NO. 3 SIG.

WEDNESDAY
DR. NO. 1 SIG.
DR. NO. 2 SIG.
DR. NO. 3 SIG.

THURSDAY
DR. NO. 1 SIG.
DR. NO. 2 SIG.
DR. NO. 3 SIG.

FRIDAY
DR. NO. 1 SIG.
DR. NO. 2 SIG.
DR. NO. 3 SIG.

SATURDAY
DR. NO. 1 SIG.
DR. NO. 2 SIG.
DR. NO. 3 SIG.

SUNDAY
DR. NO. 1 SIG.
DR. NO. 2 SIG.
DR. NO. 3 SIG.

DRIVER PERFORMANCE REVIEW

GENERAL INFORMATION

The driver should successfully demonstrate competence in vehicle and brake inspection prior to the completion of Skills Level Two. On completion of each task, the behind-the-wheel trainer or state-certified instructor is to initial and date the driver performance review.

THE STATE-CERTIFIED INSTRUCTOR'S SIGNATURE VERIFIES THE DRIVER'S COMPETENCY IN THESE SKILLS.

INSTRUCTOR'S SIGNATURE ____________________ **ID NO.** ________ **DATE** ________

DRIVER'S SIGNATURE ____________________ **EQUIPMENT CODE** ________ **BRAKE CODE** ______

NOTE: Time designation should be logged in ¼-hour minimums per square.

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
VEHICLE INSPECTION										
1. Interior										
2. Exterior										
3.										
4.										
5.										
BRAKE INSPECTION										
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		

INSTRUCTOR'S

BEHIND-THE-WHEEL GUIDE
FOR
CALIFORNIA'S BUS DRIVER'S TRAINING COURSE

SKILLS LEVEL ONE

BASIC VEHICLE FAMILIARIZATION AND MOVEMENT

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DRIVER PERFORMANCE REVIEW

REFERENCE	CONTENT

PURPOSE:

To present the knowledge and basic operational skills necessary for initial movement of the vehicle

OBJECTIVES:

1. Develop the trainee's understanding of appropriate terminology.
2. Identify applicable training vehicles and training sites.
3. Identify the proper position of the driver in the vehicle.
4. Develop basic training in the use of mirrors.
5. Develop skills for the correct use of the brakes.
6. Develop skills in the correct movement of the vehicle.

Note to the Instructor:

Most trainees, as they begin this skills level, still fear the vehicle and its size. They are concerned about what will take place and their performance. Discuss these concerns with each trainee and point out the importance of listening and having an open mind. Use the correct terms and be concise. It is also important to be positive, patient, and calm for the best results. This is a confidence-building lesson for the driver.

REFERENCE **CONTENT**

VEHICLE FAMILIARIZATION AND MOVEMENT GLOSSARY OF TERMS

CLUTCH BRAKE

A friction device in the clutch assembly which stops the engine gears in the transmission from turning when the clutch pedal is depressed to the floorboard

DEAD THROTTLE STARTING

Moving the vehicle from a stopped position using no throttle application

ENGINE GEARS

The gears in the transmission controlled by the engine when the clutch is engaged

GEAR CLASHING

When gears in the transmission are not properly aligned, rotating at different speeds and contacting one another

MINIMUM THROTTLE STARTING

Moving the vehicle from a stopped position using minimum throttle application

POWER TRAIN

The engine, clutch, transmission, drive line, differential, and drive wheels

RIDING THE CLUTCH

Placing and leaving your left foot on the clutch pedal. This could shorten the life of the clutch release bearing and may result in slipping the clutch.

REFERENCE	CONTENT
	SHIFT LEVER Gear shifting device located in the driver's compartment **SHIFT PATTERNS** A diagram showing the location of the gears **SLIPPING THE CLUTCH** When the clutch is only partially engaged and not allowing total power to transfer from the engine to the transmission **WHEEL GEARS** The gears in the transmission controlled by the drive wheels

REFERENCE | **CONTENT**

VEHICLE SELECTION

The selection of a vehicle is an essential part of behind-the-wheel training. The options in this selection process will vary from fleet to fleet.

For Skills Level One, we suggest you consider the following:

13 CCR, 1204

1. A vehicle comparable in size to what will be driven when transporting passengers
2. A vehicle with the emergency stopping system controls within easy reach of the instructor
3. A vehicle that is in proper working order and all equipment is in proper adjustment
4. A vehicle with an automatic transmission may be more suitable (if available)

There is no shifting required in this skills level; however, either an automatic or a standard transmission can be used at this level.

SITE SELECTION

The selection of a training site for Skills Level One will be different from other skills levels because of the type of training being given. The training site for this skills level could be your transportation facility. Most of the training is done with the vehicle sitting still and the engine shut off. Because little movement is required of the vehicle, driving a distance to a training site is not necessary.

POSITIONING OF DRIVER

The proper position in the driver's seat is important for safe operation, and it helps reduce driver fatigue.

It is the instructor's responsibility to know all the adjustments on a driver's seat and to ensure that all those adjustments are working properly.

The following procedure was developed for positioning a driver of average height and weight.

1. Have trainee sit in the driver's seat.
2. Have trainee place both hands on the steering wheel in a position which will allow complete control of the steering wheel. The hand positions most often used are the 10 and 2 or 9 and 3. A slight bend in the elbows is correct in order for the arms to be relaxed and to give the driver optimum control of the vehicle. The driver's seat may need to be adjusted closer to the controls when the arms are stretched. If the bend in the elbows is extreme, the seat may need to be adjusted back.
3. Have the trainee place the left foot on the clutch pedal and depress it. Then have the trainee place the right foot on the service brake pedal and depress it. If the leg must be stretched to accomplish this, the driver's seat may be too high and needs to be lowered, or most commonly, the seat may be too far back and should be adjusted forward. Proper seat adjustment will improve the driver's control of the vehicle.
4. When the above adjustments have been made, check for proper back support. The trainee's back should be firmly against the back of the seat to provide support, reduce fatigue, and ensure control of the vehicle. If back support is lacking, adjust the driver's seat until support is obtained.
5. Have the trainee put on the seat belt. Explain the two types of seat-belt systems:

   Passive-Restraint Seat Belt

   Requires the driver to fasten the seat belt without further driver adjustment for proper securement

   Active-Restraint Seat Belt

   Requires the driver to fasten the seat belt and continue to adjust for proper securement

USE OF MIRRORS

Understanding correct mirror use is extremely important in the safe operation of the vehicle. Proper mirror use will enable the driver to understand the value of the lesson in the following areas:

1. Being able to see children and/or adults around the vehicle
2. Being able to see vehicles and objects around the vehicle
3. Eliminating blind spots around the vehicle

Mirrors that are required by law on school buses in California are listed below:

1. Inside flat or rearview mirror
2. Left outside flat mirror
3. Right or left crossview mirror (for vision of front of bus)
4. Right outside flat mirror

The above mirror configuration leaves serious blind spots on the right and left sides of the vehicle.

The following optional mirrors may be added to help eliminate the blind spots for the driver on the right and left side of the vehicle:

I. Coach/Transit Type Buses
    A. Right Side: A convex mirror the same size as the standard crossview mirror (8 inches diameter) should be mounted on the bracket below the flat mirror on the right side of the bus. This mirror should be adjusted so the right side of the vehicle can be viewed. This mirror is essential when loading and unloading passengers, preparing and making right turns, and when changing lanes to the right.
    B. Left Side: A convex mirror no smaller than 4 inches in diameter should be mounted on the mounting bracket just above or just below the flat mirror. This mirror should be adjusted so the area from the left front wheel rearward can be viewed. This mirror is essential in preparing for and making left turns and lane changes to the left.

II. Conventional and Van-Type Buses

A. Front of the Bus: Two convex mirrors the same size as the standard 8-inch crossview mirror should be added. One is placed on the right front corner, adjusted so the entire right side of the vehicle can be viewed. One is also placed on the left front corner, adjusted so the entire left side of the vehicle can be viewed. This application will clear the blind spots around the front wheels as well as both sides of the bus. These mirrors are vital when loading and unloading passengers, preparing and making turns, and making lane changes to the right and left.

Before discussing the basics of field of vision and proper adjustment of mirrors, the instructor should check to see if all mirrors are mounted on the vehicle correctly. The following procedure is suggested:

The Crossview Mirror: The instructor stands at the front corner of the vehicle opposite the crossview mirror and views across the front of the bus. The entire mirror should be exposed. If part of the mirror is hidden by the vehicle body, it is restricting the driver's field of vision and should be readjusted.

All Other Mirrors: The instructor stands at each rear corner of the vehicle and views up each side of the bus. All right-side and left-side mirrors should be completely visible. If any part of a mirror is hidden by the vehicle body, the mirror should be readjusted so the driver will have full vision from the mirrors.

Driver Vision and Mirror Adjustment

Have the trainee sit in the driver's seat with the seat properly adjusted and view all mirrors. Adjust the mirrors one at a time as follows:

I. Inside Flat Mirror

A. The mirror should be adjusted so the driver can view the top of the rear window in the top of the mirror. This basic adjustment should provide the driver with a view of all the passengers in the vehicle, including the upper portion of the passengers seated directly behind the driver.

B. Point out the angular vision through the left-side and right-side passenger windows. Be sure to discuss the serious blind areas that exist below window level.

II. Crossview Mirror

A. This mirror should be adjusted so the entire area in front of the vehicle can be viewed as well as the front bumper.

III. Left Flat Outside Mirror and Additional Convex Mirror

A. The proper adjustment for the left flat outside mirror can be made using the following criteria:

VC 26709

1. The driver must be able to see 200 feet to the rear of the bus.
2. One inch of the flat mirror closest to the vehicle body should be viewing the left side of the bus.
3. The driver should be able to see the left rear tires touching the ground.

B. Using the flat mirror in conjunction with the convex mirror, the entire area to the rear of the mirror on the left side of the vehicle should be in clear view.

IV. Right Flat Outside Mirror and Additional Convex Mirror

A. The proper adjustment for the right flat outside mirror can be made using the following criteria:

1. The driver must be able to see 200 feet to the rear of the bus.
2. Approximately one inch of the flat mirror closest to the vehicle body should be viewing the right side of the bus.
3. The driver should be able to see the right rear tires touching the ground.

B. Using the flat mirror in conjunction with the convex, the entire area to the rear of the mirror on the right side of the vehicle should be in clear view.

More in-depth mirror training will be given in Skills Level Two.

REFERENCE	CONTENT

NOTE:

In a Type 1 bus, when the right flat mirror is adjusted to view the right rear wheels, you may need to instruct the driver to lower his or her head in order to see 200 feet to the rear of the bus.

In a Type 2 bus, because of the body and mirror design, the right flat mirror usually cannot be adjusted so the driver can view the right rear tires touching the ground and 200 feet to the rear of the vehicle at the same time.

USE OF BRAKES

I. Explain the proper use of brakes, with the engine off. Make sure the brakes on the vehicle are adjusted properly before beginning this instruction.

   A. Air Brakes

      1. Explain to the trainee that air brakes are generally more sensitive than what he or she has been accustomed to, so less pedal pressure is needed to make a smooth, easy stop.
      2. Have the trainee place the right foot on the service brake pedal and depress it to the point where the instructor knows the vehicle will make a smooth, easy stop. The instructor will need to drive the vehicle being used to determine proper brake application. Have the trainee repeat this exercise several times in order to understand the amount of pedal pressure it takes to make a smooth, easy stop.
      3. Discuss with the trainee the weight of the vehicle and the energy it takes to stop it. Explain all the reasons a driver should make smooth, easy stops.

   B. Hydraulic Brakes

      1. All buses in California that have hydraulic brakes as the foundation brake system must be equipped with some type of power brake booster. Explain to the

trainee that this type of brake system may be more sensitive than what the trainee has been accustomed to.

2. Have the trainee place the right foot on the service brake pedal and depress it to a point where the instructor knows the vehicle will make a smooth, easy stop. The instructor will need to drive the vehicle being used to determine the proper brake application. Have the trainee repeat this exercise several times in order to understand the amount of pedal pressure it takes to make a smooth, easy stop.
3. Discuss with the trainee all the reasons a driver should make smooth, easy stops. Correct use of brakes is an essential part of being a professional and efficient driver.

NOTE:

The instructor should demonstrate a smooth, easy application, a moderate application, and a severe application (5 mph) to the trainee so that proper brake control is fully understood.

VEHICLE MOVEMENT - AUTOMATIC TRANSMISSION

This is the first time the trainee will start the engine and move the vehicle:

I. Starting the Vehicle
   A. Explain the shift pattern and shift lever, making sure the shift lever is in the "N" (Neutral) position or in "P" (Park) position, if the vehicle is so equipped.
   B. Explain where the emergency stopping system/parking brake control is located and how to apply and release it. The emergency stopping system/parking brake must be applied when starting the vehicle to prevent possible vehicle movement.
   C. Explain the starting controls. For example, a key start system or a key/button start system.

REFERENCE	CONTENT

D. Have the trainee start the vehicle.

II. Moving the Vehicle

A. Have the trainee place his or her right foot on the service brake pedal and apply pressure.

B. Place the shift lever in the appropriate forward gear position.

C. Release the emergency stopping system/parking brake control.

D. Have the trainee slowly release the service brakes, slowly depress the throttle, and move the bus.

The vehicle will be moving at a very slow speed. Have the trainee stop the vehicle, place the shift lever in "N" (Neutral) or "P" (Park) and apply the parking brake. Have the trainee repeat step II (moving the vehicle) several times to become familiar with stopping the vehicle and the procedure for correctly moving the bus.

VEHICLE MOVEMENT - STANDARD TRANSMISSION

I. Transmission Use (Engine Off)

A. Explain the shift pattern. Have trainee place one hand on the shift lever and move it easily from one side to the other in neutral. Point out the guide spring that protects the first and reverse gears. It is important that the trainee identify the guide spring in order to know how to select the first or reverse gears. This knowledge will help later in the shifting process.

B. Placing the transmission in the starting gear on a vehicle equipped without a clutch brake (Simulate the engine running.)

1. The driver must understand what the gears in the transmission are doing when the vehicle is stopped and the transmission is in neutral. The wheel gears, which are the gears controlled by the drive wheels, are stopped. The engine gears, which are the gears controlled by the engine when the clutch is up, are

REFERENCE	CONTENT

turning. Now we are ready to place the transmission in the starting gear without grinding the gears.

2. When the clutch pedal is down, the power from the engine to the transmission is separated, and the engine gears should stop turning in about 5 seconds. Have the trainee disengage (open) the clutch by pushing the clutch pedal down and then start counting 1,001, 1,002, 1,003, 1,004, 1,005. As a general rule, at the end of five seconds, the engine gears should be stopped. If the engine gears are not stopped in about 5 seconds, the instructor should determine how many seconds are necessary to stop the engine gears so that correct instruction can be given. Now the trainee is ready to move the shift lever into the starting gear. During this exercise the trainee may not be able to put the transmission in gear, because the engine is not running and the gears may not be aligned correctly.

C. Placing the transmission in the starting gear on a vehicle equipped with a clutch brake

1. A clutch brake is a friction device in the clutch assembly which stops the engine gears in the transmission from turning when the clutch pedal is pushed all the way down.
2. Have the trainee push the clutch pedal down and move the shift lever from neutral into the starting gear. There should be no gear clash.
3. If the clutch brake is worn out or out of adjustment, the above procedure will not work without allowing time for the engine gears to stop rotating. If this is the case, teach the trainee the procedure for placing the transmission in the starting gear without a clutch brake.

REFERENCE	**CONTENT**

NOTE:

When shifting gears, which will come in Skills Level Three, the clutch brake, if applied during shifting, will stop the engine gears from turning and prevent the matching of the engine gears and wheel gears. To avoid this problem, push the clutch pedal down approximately halfway. This will not engage the clutch brake but will allow matching of the engine gears and wheel gears to complete a shift.

II. Clutch Use (Engine Off)

In order for the trainee to understand proper clutch use, he or she must have a basic understanding of what a clutch is and how it functions. The clutch is a friction coupler mounted behind the engine, and its function is to transfer power from the engine to the transmission and the rear wheels.

By the use of a clutch pedal, the driver can uncouple the power from the engine to the transmission by pushing the clutch pedal down, or the driver can complete the transfer of power from the engine to the transmission by letting the clutch pedal up. No friction or clutch wear occurs when the clutch pedal is down nor is there any friction or clutch wear that occurs when the clutch pedal is all the way up. Normal clutch wear occurs either when the driver is letting the clutch up to move the vehicle from the stopped position or when letting the clutch up at the completion of a shift.

The instructor should demonstrate a proper clutch release to move the bus. The following procedure is suggested for proper clutch use:

A. Throttle Use When Releasing the Clutch: Use dead throttle, which is no throttle application, or minimum throttle, which is the least amount of throttle application necessary to move the bus, while releasing the clutch. The clutch is a friction coupler. The slower the engine speed (rpm) while letting the clutch up, the less friction and wear on the clutch.

B. Releasing the Clutch: Have the trainee sit in the driver's seat and push the clutch pedal down and then let the clutch pedal up very slowly. Explain that the power should be transferred through the clutch smoothly and easily. This reduces wear on the clutch as well as the rest of the drive train. Have the trainee repeat the slow, easy release of the clutch several times in order to develop the proper coordination.

Vehicle Movement

A. Explain the location of the emergency stopping system/parking brake control and how to apply and release it. The emergency stopping system/parking brake must be applied and the clutch disengaged when starting the engine to prevent possible vehicle movement.

B. Explain the starting controls; for example, a key start system or a key/button start system.

C. Have the trainee start the vehicle.

D. Have the trainee place the right foot on the service brake pedal and apply it enough to hold the vehicle stationary.

E. Depress the clutch pedal to disengage (open).

F. Wait 5 seconds and then place the shift lever in the starting gear.

G. Release the emergency stopping system/parking brake control.

H. Release the clutch slowly until the tach needle drops a little and/or you feel clutch contact. (The engine power is starting to transfer to the rest of the power train.)
At this point, release the service brake and continue to let the clutch pedal up until the clutch is fully engaged (closed). The vehicle will be moving at a very slow speed.

I. Have the trainee stop the vehicle, place the shift lever in neutral, and set the parking brake.

Have the trainee repeat steps D through I several times to become proficient at stopping the vehicle and understand basic clutch and transmission use.

DRIVER PERFORMANCE REVIEW

SKILLS LEVEL ONE

The driver must successfully demonstrate competence in each task listed in this skills level before progressing to the next skills level. On completion of each task, the behind-the-wheel trainer or state-certified instructor is to initial and date the driver performance review.
THE STATE-CERTIFIED INSTRUCTOR'S SIGNATURE VERIFIES THE DRIVER'S COMPETENCY IN THIS SKILLS LEVEL.

INSTRUCTOR'S SIGNATURE ______________________ **ID NO.** ________ **DATE** ________

DRIVER'S SIGNATURE ______________________ **EQUIPMENT CODE** ________ **BRAKE CODE** ______

NOTE: Time designation should be logged in ¼-hour minimums per square.

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
DRIVER VISION & MIRROR ADJUSTMENT										
1.										
2.										
3.										
4.										
CLUTCH USE										
1. Proper use										
2.										
3.										
4.										
TRANSMISSION USE										
1. Engaging starting gear										
2.										
BRAKE USE										
1. Proper application										
2.										
3.										
4.										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		

INSTRUCTOR'S

BEHIND-THE-WHEEL GUIDE
FOR
CALIFORNIA'S BUS DRIVER'S TRAINING COURSE

SKILLS LEVEL TWO

PRECISION TRAINING IN VEHICLE MOVEMENT AND DRIVING FUNDAMENTALS

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DRIVER PERFORMANCE REVIEW	

REFERENCE	CONTENT
	PURPOSE: To help the trainee learn proper driving fundamentals and develop precision vehicle movement for backing, turning, and parking maneuvers **OBJECTIVES:** Effectively teach: 1. Use of hazard lights 2. Precision backing procedures 3. Correct use of turn signals 4. Correct use of mirrors 5. Precision turning procedures 6. Precision parallel parking procedures

REFERENCE	CONTENT

NOTE TO THE INSTRUCTOR:

The following lessons have been designed for the trainee to progress toward competency. The trainee starts with the basics of backing a vehicle and moves on to more specific demands of finding a correct turning point.

During Skills Level Two it is important that the instructor emphasize the specific demands that will be encountered in these basic maneuvers.

The information in this guide was developed to assist you in your instruction with both new and experienced drivers.

The contents of this guide are designed to assist any driver in understanding the basic principles of correctly maneuvering a vehicle.

Once the driver understands the principles, it will be the instructor's responsibility to ensure that the driver develops correct habit patterns.

Developing correct driving habits for bus operation is not an easy task. Some people might think that the smaller the bus used in training, the quicker the driver will develop correct driving habits, or the more experience they have had driving large equipment (for example, trucks and tractor trailers), the easier they can develop correct habit patterns for the larger Type 1 buses. Experience has proved that this is not the case. In fact, the instructor's job will be more challenging when training individuals in vehicles that closely relate to what they have been accustomed to driving. You are trying to redevelop habit patterns for correct bus operations, and trainees will be applying the driving habits they developed for the vehicle and conditions in which they normally drive. This also applies to incorrect driving habits developed by experienced drivers.

It is a known fact that some of the best bus drivers on the road today had very little driving experience before they became bus drivers.

They were given correct instruction during their original training, and their annual in-service training reinforced the habit patterns originally developed.

Developing good driving habits requires constant thought and correct action. Your job as an instructor is to provide proper guidance to both your new and experienced bus drivers.

For this skills level you must be prepared by having all necessary equipment ready (tape, tape measures, chalk, traffic cones, and preplanned site, and so forth).

REFERENCE | **CONTENT**

VEHICLE SELECTION

Throughout the instruction of this skills level, it is recommended to have the trainees learn and develop their driving skills on all the vehicles they may be driving. These vehicles can be equipped with automatic or standard transmissions. (No progressive shifting of gears is required in this skills level.) It is important that the vehicles have a good turning radius, that they have good mirror visibility, and that they are easy to steer.

SITE SELECTION

Site selection is very important. Generally, most of the training can be given at your transportation property. If the area is too small or there is too much traffic, perhaps a large unoccupied parking lot located at a fairground or sports complex would be available. If none of the above is available, find an area that is secluded from traffic. Having a controlled environment will enhance trainee concentration on the skills being taught. It will also allow you to devote more attention to the trainee.

USE OF HAZARD WARNING LIGHTS

The four-way flashers (all turn signal lights flashing simultaneously) should be activated only when:

VC 25251
1. The vehicle is disabled on the roadway (main traveled portion of highway or traffic lane) or when it is disabled or parked off the roadway but within 10 feet thereof.

VC 25257.5
2. Warning other motorists of accidents or hazards on a roadway while the vehicle is approaching, overtaking, or passing the accident or hazard on the roadway.
3. To warn motorists or pedestrians on a roadway during a backing maneuver, a school bus driver may use the hazard lights.

PRECISION BACKING

PURPOSE:

To provide each trainee with the knowledge to develop safe backing techniques

OBJECTIVES:

To effectively teach the following:

1. Correct use of flat mirrors to monitor the direction of the vehicle
2. Proper steering control
3. Proper depth perception skills
4. Proper mirror use
5. Recognition of ground and vehicle references
6. Proper vehicle movement and placement on the roadway

Hand Positioning During a Backing or Turning Maneuver

Under normal driving conditions a driver needs both hands on the steering wheel to ensure proper vehicle control. There are three basic types of steering systems. Correctly understanding each system presents a different challenge to the driver.

Manual Steering

A manual steering system makes the vehicle difficult to steer in a sharp backing or turning maneuver. To use a manual steering system will require both hands on the steering wheel, either using the hand-over-hand method or the push-pull method. This type of steering will be the most physically demanding for the driver.

Power-Assisted Steering

A power-assisted steering system, unlike the manual system, uses power from the engine to assist the driver in steering the vehicle. During a sharp backing or turning maneuver, the driver may still need to use the hand-over-hand or push-pull method of steering the vehicle.

Full-Time Power Steering

Full-time power steering will require the least physical effort from the driver. With this type of system it will be easier for the driver to steer through a sharp backing or turning maneuver. In a vehicle equipped with a standard transmission, the driver may have a tendency to steer the vehicle with one hand during turning maneuvers or while shifting the transmission. One hand must be in control of the steering wheel at all times.

Sounding the Horn

It is a suggested practice to sound the horn before and sometimes during a backing maneuver.

REFERENCE

CONTENT

BACKING LESSON - GLOSSARY OF TERMS

ALIGNING THE VEHICLE

Positioning the vehicle so it is parallel to the ground reference

BLIND AREAS

The areas behind, in front of, and on the side of the vehicle that a driver cannot see from the driver's seat

CONVEX MIRROR

A mirror with curved glass that gives a driver a wide angle of vision. It is primarily used to eliminate blind spots around the vehicle.

DEPTH PERCEPTION

The ability to judge distance between two or more objects

FLAT MIRROR

A mirror with flat glass, mounted on each side of the vehicle. These mirrors can be used for judging distance.

FULL LOCK LEFT

The turning of the steering wheel to the left steering stop

FULL LOCK RIGHT

The turning of the steering wheel to the right steering stop

GRADUAL BACKING CROSSOVER

Backing the vehicle from one side of a ground reference to the other in a gradual movement

GROUND REFERENCE

A point or object on the ground (a line, side of roadway, and so forth)

INTERIOR REARVIEW FLAT MIRROR

A mirror with flat glass mounted on the inside of the vehicle directly above the driver's seat. This mirror is used to view traffic behind the bus and to the right and left sides. This mirror can also be used to view the passengers.

REFERENCE **CONTENT**

LOCK TO LOCK

The turning of the steering wheel from the right steering stop to the left steering stop or vice versa

REALIGNING VEHICLE

Returning the vehicle to a parallel position next to the ground reference

SHARP BACKING CROSSOVER

Backing the vehicle from one side of a ground reference to the other in a sharp movement (turning the steering wheel lock to lock)

STEERING THE REAR AXLE

Controlling rear axle direction by turning the steering wheel at the appropriate time

STRAIGHT LINE BACKING

Backing a vehicle next to the ground reference, keeping the vehicle an equal distance from the reference

VEHICLE REFERENCE

A point or object on the vehicle (the rear tires, side of bus, and so forth)

REFERENCE | **CONTENT**

PRECISION BACKING PROCEDURES

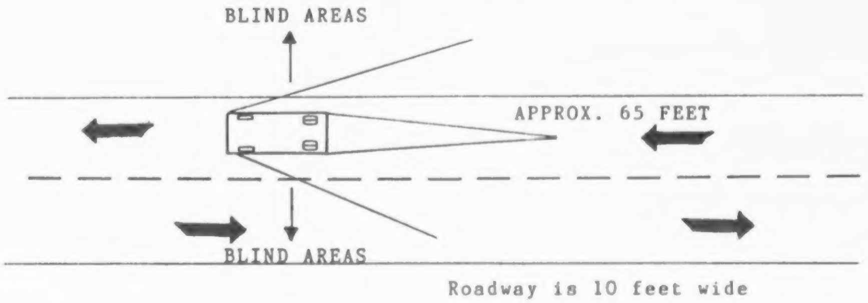
I. Blind Areas Behind the Vehicle

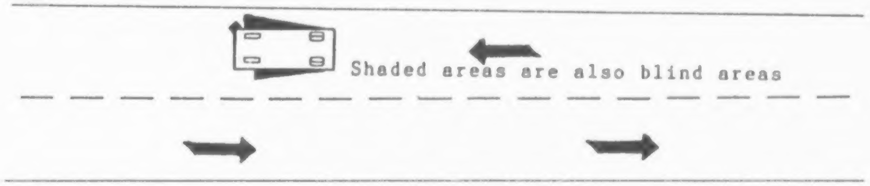
  A. Discuss the blind areas.

  B. Physically show the driver these areas:

    1. Emphasize the size of the area.

    2. Emphasize the dangers of these areas.


BLIND AREAS
APPROX. 65 FEET
BLIND AREAS
Roadway is 10 feet wide


Shaded areas are also blind areas

NOTE:

For purposes of teaching the following backing maneuvers, when aligning the vehicle to a ground reference, use the side of the vehicle for the vehicle reference. When actually doing the backing maneuver, use the rear wheels for the vehicle reference. The instructor must determine what the ground reference will be. Doing the following steps in a forward motion may help the driver to better understand the backing procedures.

REFERENCE | **CONTENT**

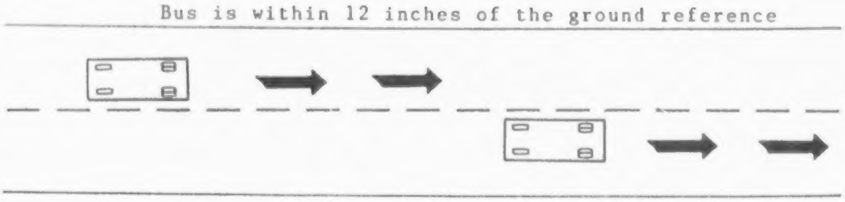
II. Straight Line Backing

A. Identify the vehicle reference and ground reference.

B. Instruct the trainee to align the vehicle parallel and within 12 inches of the ground reference on the left side of the vehicle. Have the trainee exit the vehicle and check the distance of the vehicle from the ground reference using a tape measure.

C. Instruct the trainee to use a dead throttle start (idle speed) in reverse, keeping the vehicle parallel and within 12 inches of the ground reference.

D. Position vehicle on the right side of the ground reference and have the trainee repeat the maneuver. This will show the trainee the difference in the visibility between the left flat mirror and the right flat mirror.



STRAIGHT LINE BACKING

III. Gradual Backing Crossover

A. The ground reference is to the left of the vehicle. Trainee is to observe the left flat mirror.

B. Align the vehicle parallel and within 12 inches of the ground reference.

C. Use the rear wheels as the vehicle reference.

D. Use a dead throttle start (idle speed).

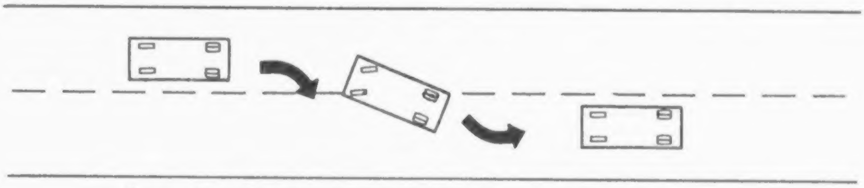
E. Turn the steering wheel slightly to the left.

F. The trainee must change from the left flat mirror to the right flat mirror when the ground reference intersects with the left-side vehicle reference.

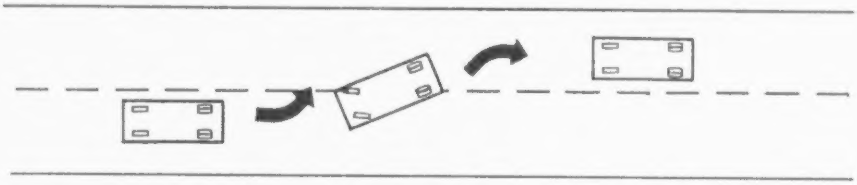
G. When the ground reference and right vehicle reference intersect, the trainee must start the recovery.

H. Realign the vehicle parallel and within 12 inches of the ground reference. The ground reference is now to the right of the vehicle.

I. Position vehicle on the right side of the ground reference and repeat the maneuver.



Ground reference to the left of the vehicle



Ground reference to the right of the vehicle

GRADUAL BACKING CROSSOVER

IV. Sharp Backing Crossover

A. The ground reference is to the left side of the vehicle.

B. Align the vehicle parallel and within 12 inches of the ground reference.

C. Use the rear wheels as the vehicle reference.

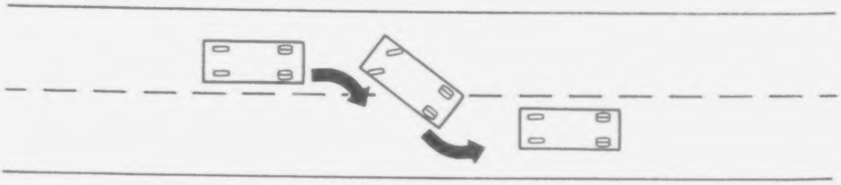
D. Use dead throttle start (idle speed).

E. Turn the steering wheel full lock left.

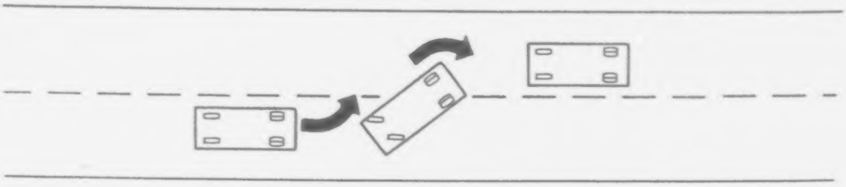
F. The trainee must change from the left flat mirror to the right flat mirror when the ground reference and left vehicle reference intersect. Because this is a sharp maneuver, the trainee's reactions must be quicker. At the proper time the trainee will turn full lock right. The trainee will find if he/she waits until the right vehicle reference and right ground reference intersect, the vehicle will be very difficult to realign. Show the trainee how to start the recovery process sooner by correctly compensating for the sharpness of this maneuver.

G. Realign the vehicle parallel and within 12 inches of the ground reference, which is now to the right of the vehicle.

H. Position the vehicle on the right side of the ground reference and repeat the maneuver.



Ground reference to the left of vehicle



Ground reference to the right of vehicle

SHARP BACKING CROSSOVER

V. Backing Weave

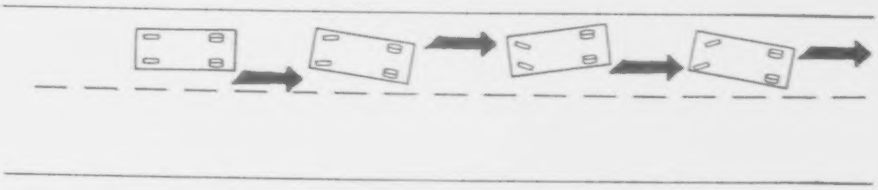
A. Position the vehicle in the center of the lane.

B. Use dead throttle start (idle speed).

C. Turn the steering wheel slightly to the left, watching the right flat mirror. The blind area directly behind the vehicle will diminish.

D. Turn the steering wheel slightly to the right, watching the left flat mirror. The trainee can now see how the slight weave of the vehicle has made the blind area diminish. The trainee may use the right and left edge of the available roadway as a ground reference. The trainee should keep the vehicle within the available space while doing this maneuver.

E. When backing within one to two vehicle lengths of a fixed object, the backing weave is not suggested. At this time a visual inspection by the driver and/or a monitor would be advisable.



Ground reference to the left of vehicle

BACKING WEAVE

REFERENCE	CONTENT

VI. Backing Around a Corner or into a Stall

Right or left-side maneuver

A. Align the vehicle parallel and within 12 inches of the ground reference. The ground reference is the curb line or edge of road.

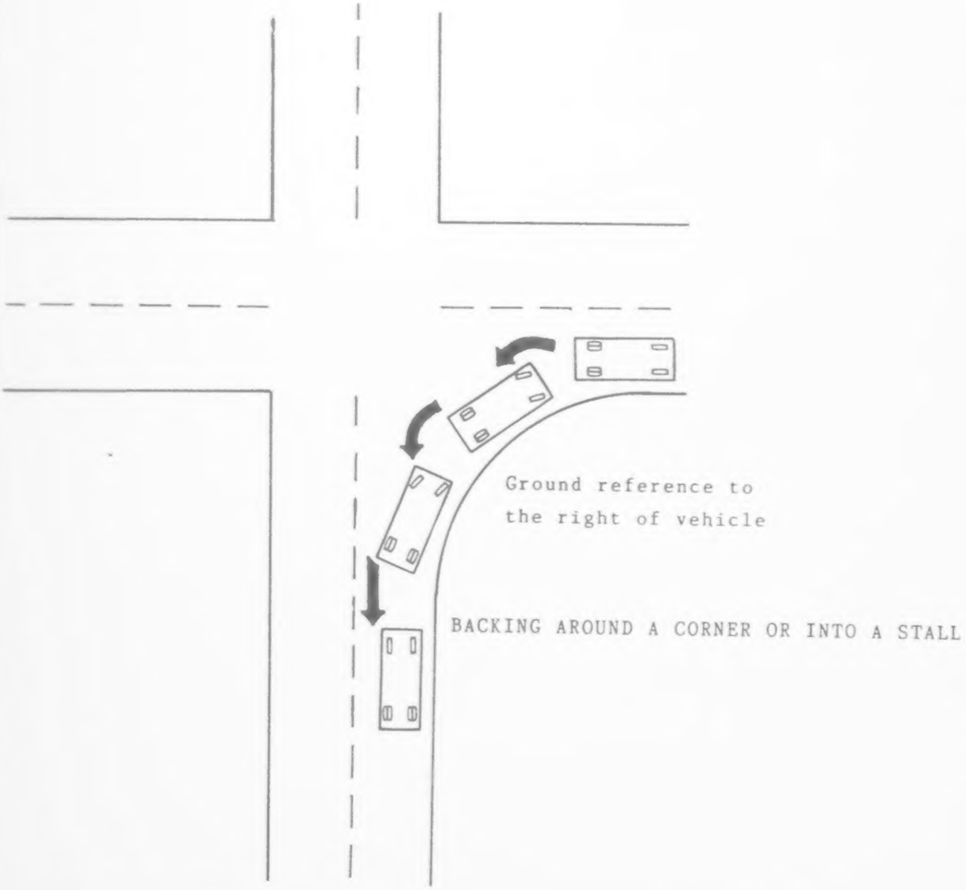
B. The vehicle reference is the rear wheel.

C. Watch the ground reference and the vehicle reference to ensure that the vehicle does not come into contact with a problem object.

D. After completing the turn, realign the vehicle parallel and within 12 inches of the ground reference.

E. The trainee must monitor all mirrors continuously.

F. Practice this maneuver from the right and left sides.



BACKING AROUND A CORNER OR INTO A STALL

REFERENCE | **CONTENT**

USE OF TURN SIGNALS

VC 22107

A driver must give a signal before turning, changing lanes, or moving right or left on a roadway if the movement affects any other traffic. The following is a suggestion for use of turn signals:
Activate the left or right turn signal at least 100 feet before attempting to make a turning maneuver. Additional instructions on the correct use of turn signals will be presented in Skills Level Four.

OPERATIONAL USE OF MIRRORS

Bus drivers have a tremendous responsibility and should be provided with adequate mirrors to do their job safely. The fact is, we can hang mirrors all over the buses; but unless we teach the drivers how to use them correctly, our efforts to ensure safety will have been wasted.

Below are some suggestions that will help the trainees to develop good habit patterns in using the mirrors.

1. Before starting out from any kind of stop, be sure to check all mirrors for traffic, pupils (on and off the bus), pedestrians, bicycles - anything! Know what's happening around you before you move.
2. Mirrors must be used before and during all turns. Check for traffic and backswing clearance before turning.

NOTE:
All instructors should carry necessary tools to adjust mirrors (for example, screwdriver, wrench, and pliers).

Five-Count Mirror System

The five-count mirror system is an effective method of using mirrors to recognize and avoid problem objects. When the driver is trained to use this system correctly, the benefits should amount to a reduction in accidents. Remember, the driver must be trained to use mirrors correctly under all conditions and applications.

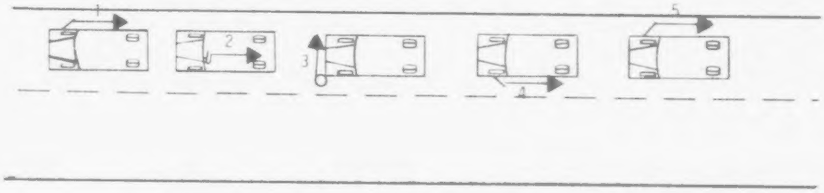
I. Right Turns

From moving and stopped positions

A. Conventionals and vans with crossview mirror mounted on the left side

1. Right mirror or mirrors
2. Inside flat mirror
3. Crossview mirror
4. Left mirror or mirrors
5. Right mirror or mirrors

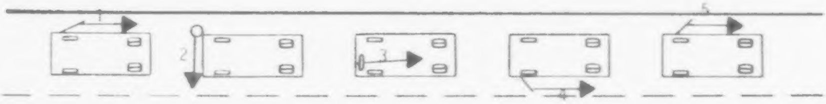
Right turns ---A



B. Conventionals, vans, and coaches with crossview mirror mounted on the right side

1. Right mirror or mirrors
2. Crossview mirror
3. Inside flat mirror
4. Left mirror or mirrors
5. Right mirror or mirrors

Right turns ---B



The crossview mirror has been included in these mirror counts because it is important that the front of the vehicle be checked, especially on conventionals when turns are made from a stopped position. Drivers also need to build a positive program of checking the crossview mirror to be carried over to the five-count system for loading and unloading.

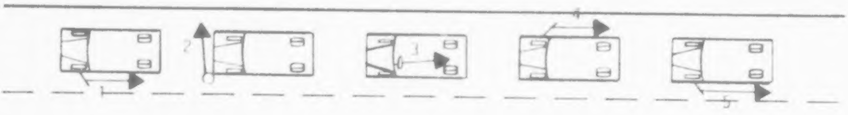
REFERENCE	CONTENT

II. Left Turns

From moving and stopped position

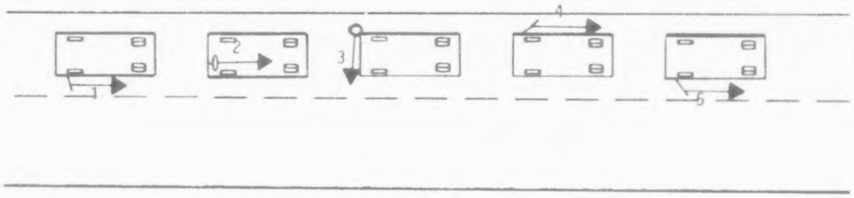
A. Conventionals and vans with the crossview mirror mounted on the left side
   1. Left mirror or mirrors
   2. Crossview mirror
   3. Inside flat mirror
   4. Right mirror or mirrors
   5. Left mirror or mirrors

Left turns ---A



B. Conventionals, vans, and coaches with crossview mirror mounted on the right side

1. Left mirror or mirrors
2. Inside flat mirror
3. Crossview mirror
4. Right mirror or mirrors
5. Left mirror or mirrors


Left turns ---B

The crossview mirror has been included for the same reasons it was included on the right-turn counts.

REFERENCE	CONTENT

PRECISION TURNING

PURPOSE:

To teach each trainee proper turning skills and turning point comprehension

OBJECTIVES

1. Steer the vehicle through the turn safely.
2. Avoid contact with problem objects.
3. Find the turning capability of each vehicle.

NOTE:

On the surface these objectives appear relatively easy to achieve. However, the average new bus driver does not understand the basic fundamentals of the turn or how the vehicle will respond in the turn.

Give consideration to all the variables that exist, such as speed, type of corner, or moving objects.

Effective training occurs as a result of proper conditioning of the mind to recognize, understand, and correctly respond to a given situation. Two training methods are used to train drivers. Trial and error, which may have a negative response, or proper conditioning through effective training. Effective training is preferred. Through effective training, correct habit patterns are developed. Habit patterns are formed by teaching the trainee how to correctly make the turns, then have the trainee repeatedly drive the vehicle through these turns. It is also important to place the trainee in a turning situation that the vehicle cannot make and monitor his or her procedure in handling this situation.

In effective turning training, conditioning begins when the driver has a fundamental understanding of the objective. This establishes the foundation necessary to the learning process.

Until now the trainee's driving habit patterns have been conditioned to steering an automobile through a turn. How does the trainee know when to turn a vehicle? The trainee either uses the trial-and-error process or is told when to begin the turn and when to turn the vehicle. Neither of these procedures establishes the correct turning point or gives the trainee the confidence needed to master the vehicle. When driving buses, the driver cannot afford the trial-and-error process; nor will someone be on board saying when to turn. Therefore, the question is, when and where does a driver correctly turn the vehicle?

REFERENCE | **CONTENT**

TURNING LESSON - GLOSSARY OF TERMS

APEX OF A TURN

The highest point or tip of a turn

CENTER OF ROADWAY

A line painted on the center on the road; or the center of the road if it has no painted line

CORRECT TURNING POINT - LEFT TURN

A specific area used by the driver to determine when to begin steering through a turn so the left side of the vehicle will clear the nearest problem object, within the turning zone, by at least 12 inches

CORRECT TURNING POINT - RIGHT TURN

A specific area used by the driver to determine when to begin steering through a turn so the right side of the vehicle will clear the nearest problem object, within the turning zone, by at least 12 inches but not more than 36 inches

GROUND REFERENCE

The right or left edge of the available roadway you are turning onto

IMAGINARY LINE - LEFT TURN

Begins at the left edge of the available roadway you are turning onto and extends across the roadway you are turning from at approximately right angles

IMAGINARY LINE - RIGHT TURN

An imagined line that begins at the right edge of the available roadway you are turning onto and extends across the roadway your vehicle is on at approximately right angles

OPTICAL ILLUSION

An unreal or misleading appearance of something being viewed

REFERENCE	CONTENT

PARALLEL TO ROADWAY

A vehicle position that is straight and an equal distance from the edge of a roadway

PROBLEM OBJECTS

Objects, movable or fixed, located in the turning zone that could create a problem for a driver while making a turn

TURNING ZONE

The safe space that is needed for the vehicle before, during, and at the completion of a turn

VEHICLE ALIGNMENT

A position parallel to the roadway, and a certain distance away from the nearest problem object or other determined point

VEHICLE REFERENCE

The front bumper of the vehicle

VEHICLE TURNING APEX

The lowest portion of the vehicle path through a turn

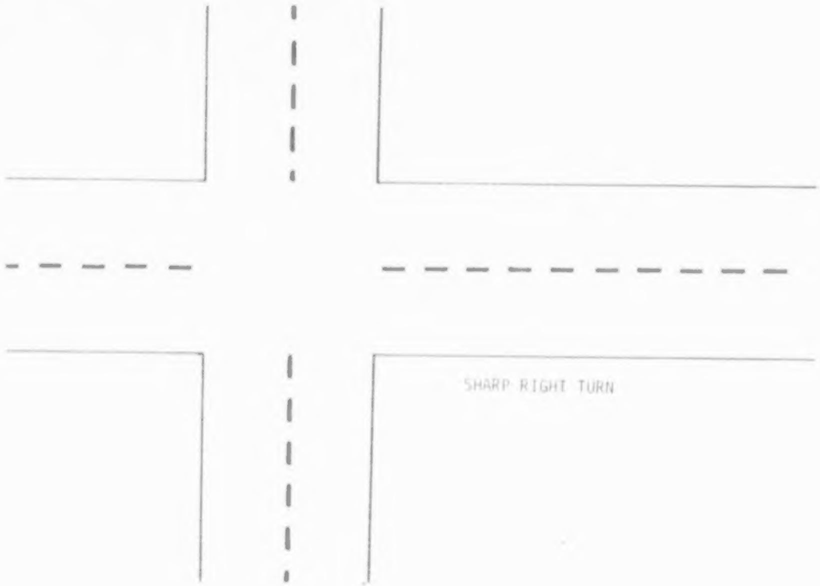
VEHICLE TURNING RANGE

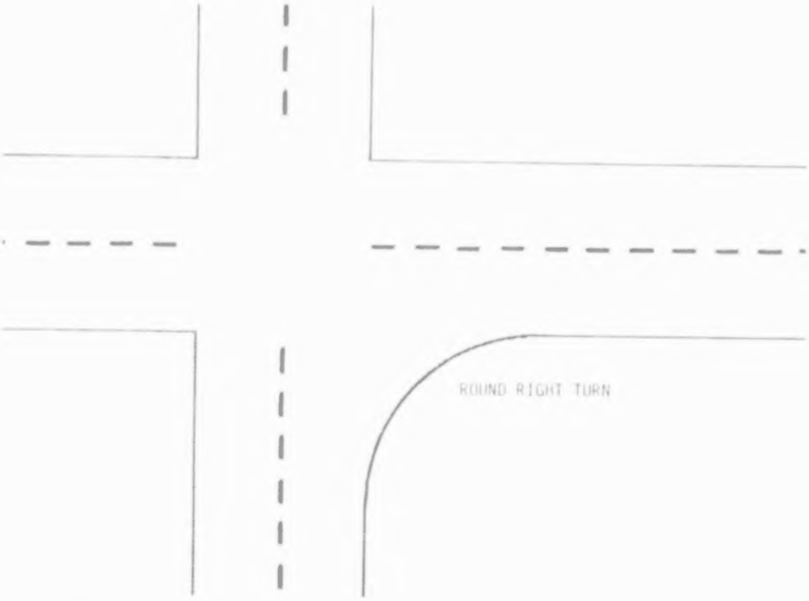
The dimension between the turning point of a sharp turn and the turning point of a rounded turn

PRECISION TURNING PROCEDURES

Right Turn (Two-Way Road)

The primary purpose of a turn is to allow vehicular traffic to change direction. Since there are many different turns, concentrate on the most common ones.


SHARP RIGHT TURN


ROUND RIGHT TURN

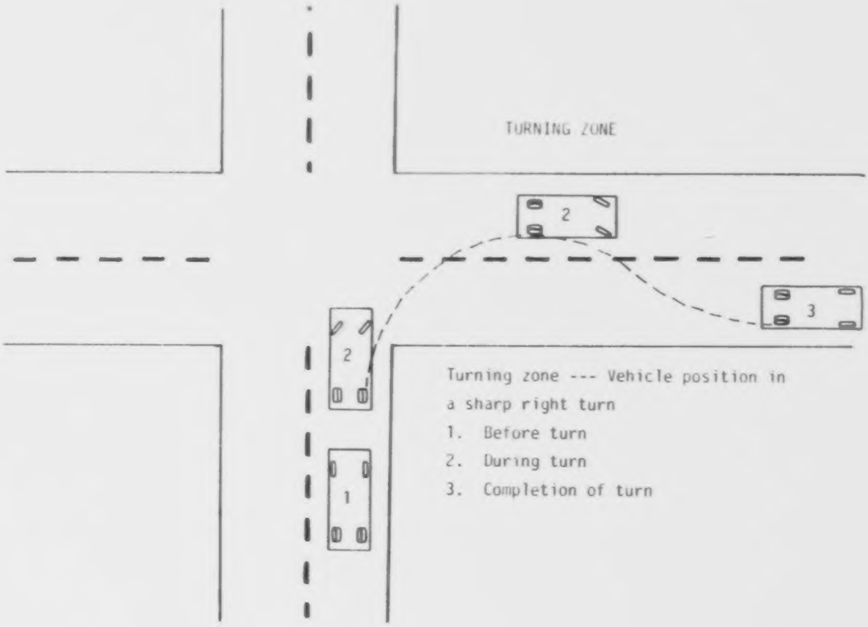
REFERENCE	CONTENT

Steering Front and Rear

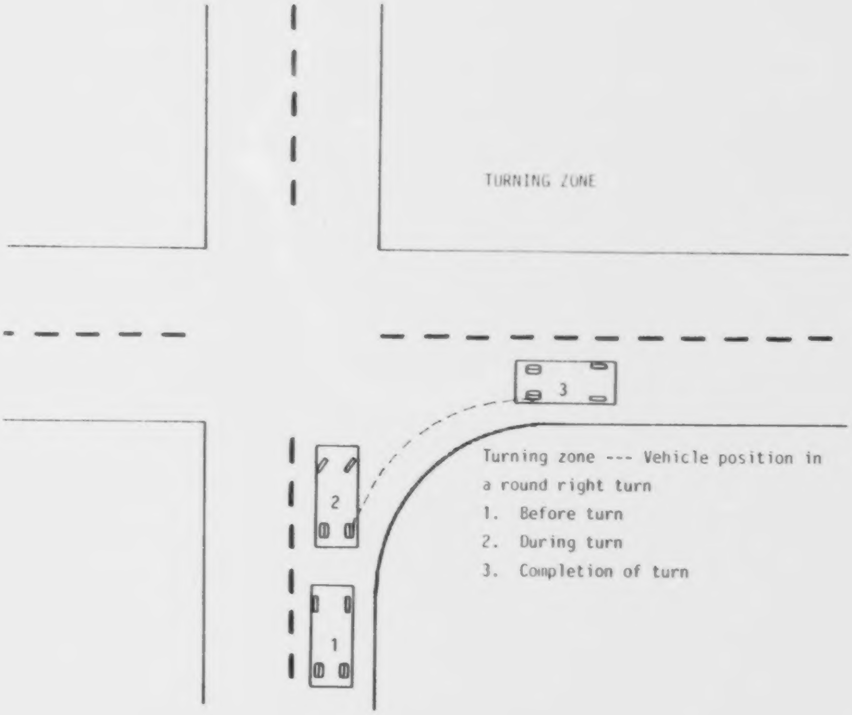
This movement is relatively simple in an automobile which is approximately 15 to 20 feet in length. In a large vehicle this is not the case. The driver must now allow for both the front and the rear of the vehicle to complete the turn.

Turning Zone

Regardless of the problem objects that exist in a turn, consider the safe space that is needed for the vehicle before, during, and at the completion of a turn. This area is known as the turning zone.


TURNING ZONE
1
2
2
3

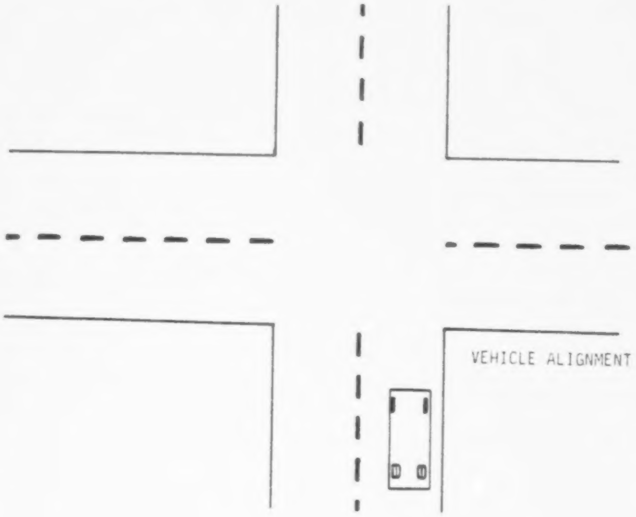
Turning zone --- Vehicle position in a sharp right turn
1. Before turn
2. During turn
3. Completion of turn

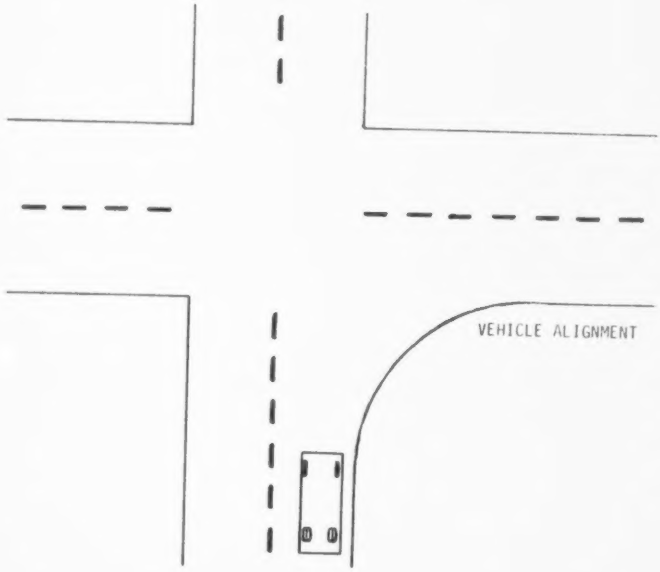

TURNING ZONE
1
2
3

Turning zone --- Vehicle position in a round right turn
1. Before turn
2. During turn
3. Completion of turn

Vehicle Alignment

A major objective is steering the vehicle through the turn without contacting any problem objects. To reduce the risk of contact with either fixed or movable problem objects, the following vehicle alignment is recommended: At the beginning of the turning zone, the vehicle should be aligned parallel to the roadway, 18 to 36 inches away from any problem objects.





REFERENCE **CONTENT**

Problem Objects

Outlined below are objects that are located within a turn that could cause problems.

A. Fixed Objects
   1. Road edge
   2. Curb
   3. Sign
   4. Pole
   5. Structure
   6. Fire hydrant
   7. Vehicle

B. Movable Objects
   1. Pedestrian
   2. Animal
   3. Vehicle (for example, car or motorcycle)
   4. Bicycle

All of these objects present a hazard or problem. In some cases a problem object will instantly change an easy turn into a very difficult turn. A driver might misjudge a turn as a result of NOT correctly understanding and identifying a problem object.

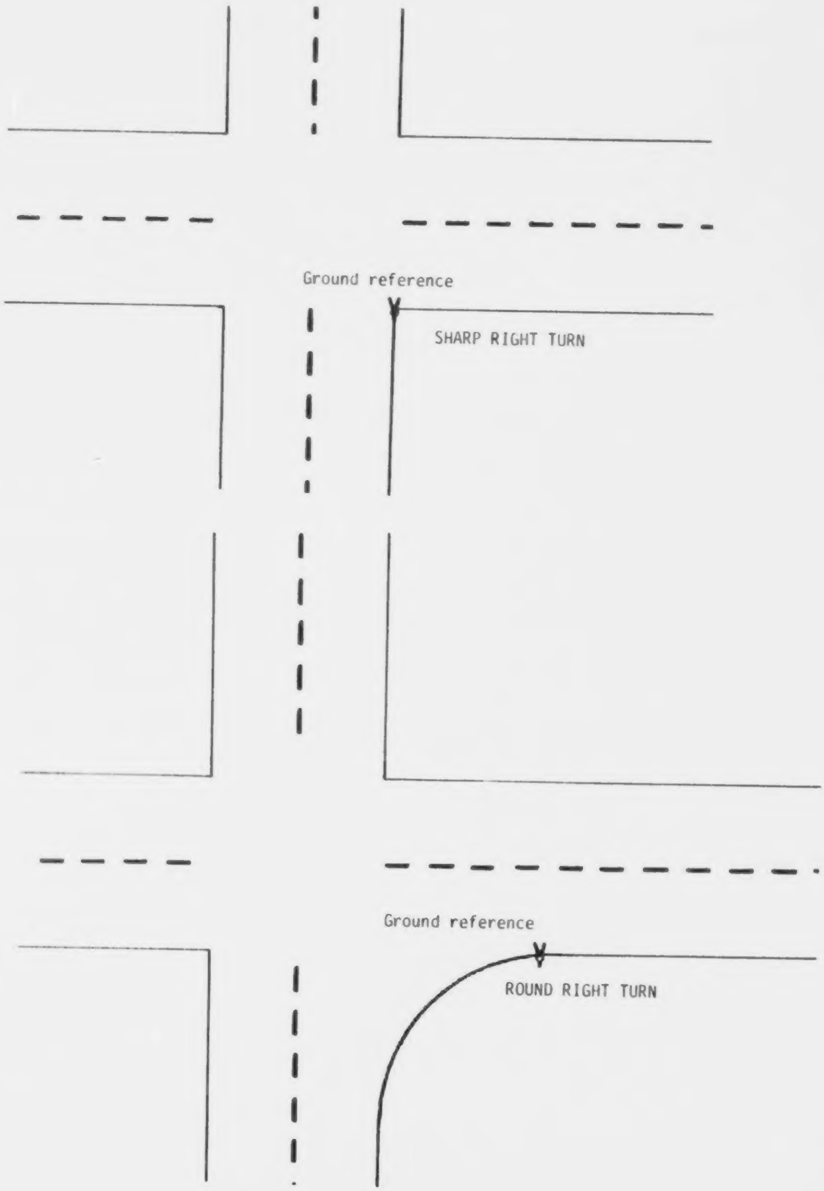
Vehicle Reference

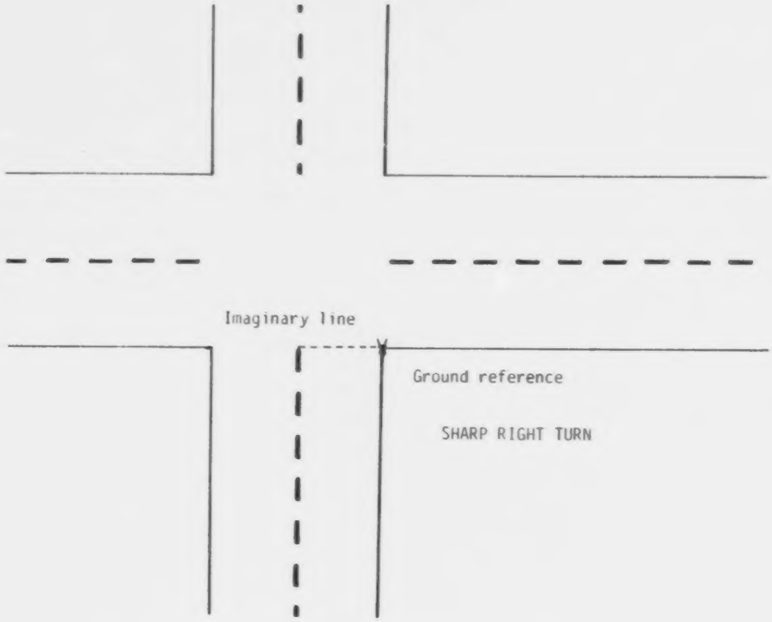
The vehicle reference is the front bumper.

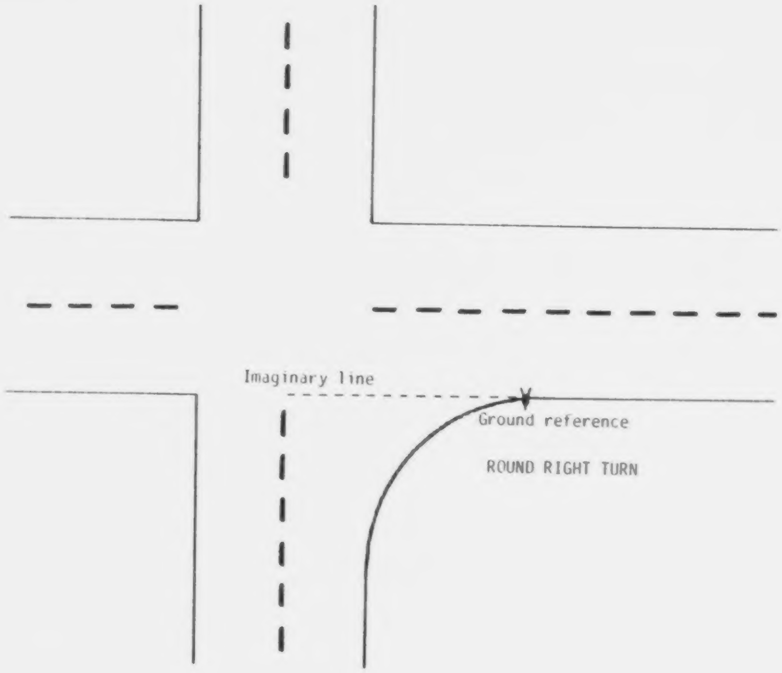
Ground Reference/Imaginary Line

1. The ground reference is located at the right edge of the available roadway you are turning onto.

2. Mentally project a straight line from the ground reference across the roadway your vehicle is on at approximately a right angle. From now on this line will be referred to as the imaginary line.
3. If a problem object is in the turning zone, you must adjust the ground reference and the imaginary line accordingly.


Ground reference
SHARP RIGHT TURN
Ground reference
ROUND RIGHT TURN

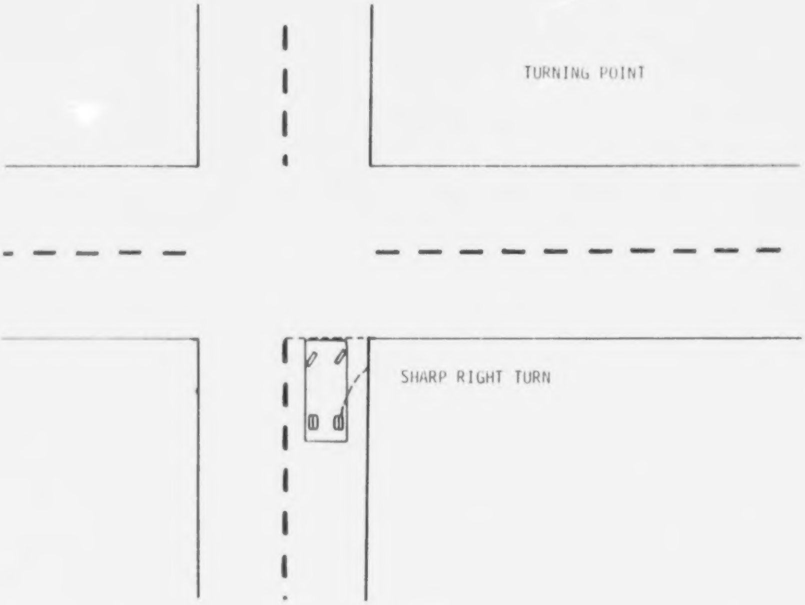

Imaginary line
Ground reference
SHARP RIGHT TURN

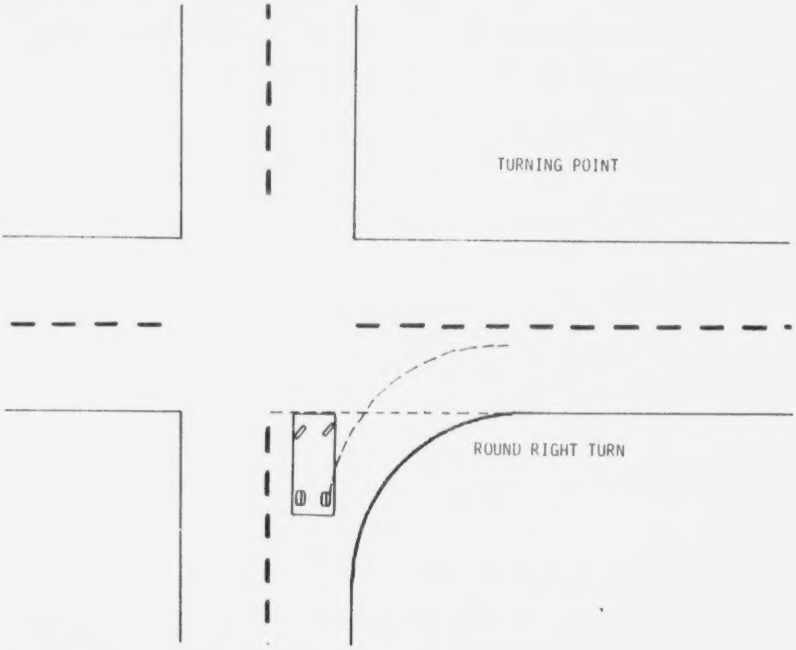

Imaginary line
Ground reference
ROUND RIGHT TURN

Turning Points

To determine the correct turning point for a vehicle will require a step-by-step process. The vehicle must be properly aligned on the roadway in a stopped position each time an attempt is made to locate the correct turning point. To find the correct turning point for a vehicle, use the following procedure:

1. Maintaining the correct vehicle alignment, move the vehicle forward until the vehicle reference (front bumper) and imaginary line intersect.
2. Turn the steering wheel to full-lock right and hold. Using dead throttle, begin moving the vehicle into the turn, watching the mirrors to see if the vehicle will clear the problem object to the right. Remain in the full lock right position until the vehicle completes the turn and is parallel to the edge of the roadway and stop. DO NOT STRAIGHTEN THE FRONT WHEELS. Stop if the vehicle is about to come into contact with a problem object prior to completing the turn.

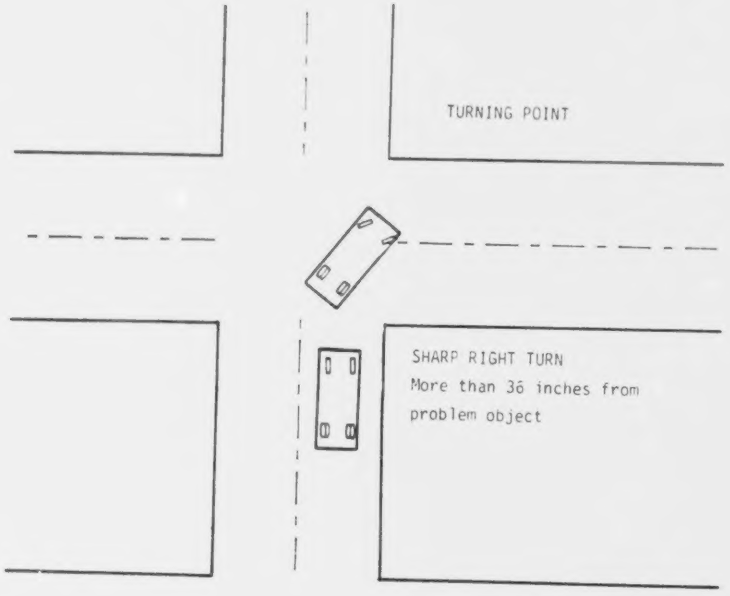

TURNING POINT
SHARP RIGHT TURN

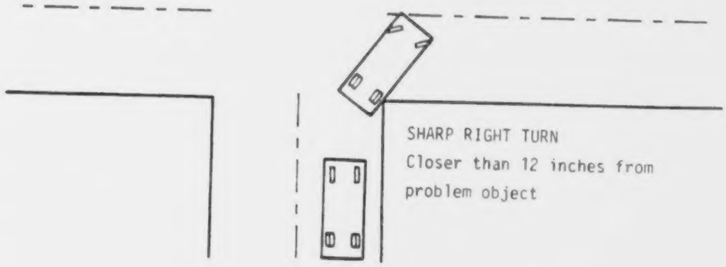

TURNING POINT
ROUND RIGHT TURN

REFERENCE

CONTENT

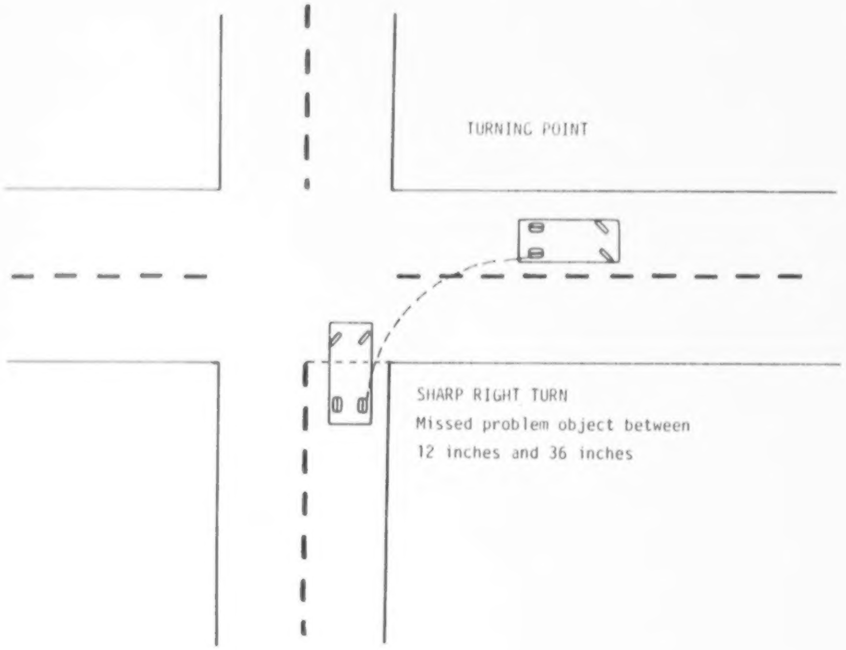
If the vehicle does not clear the closest problem object to the right by at least 12 inches, or if the vehicle is more than 36 inches from the closest right-side problem object, you must reposition the vehicle, using the same alignment. Adjust the vehicle's position with respect to the imaginary line and try again.


TURNING POINT
SHARP RIGHT TURN
More than 36 inches from problem object


SHARP RIGHT TURN
Closer than 12 inches from problem object

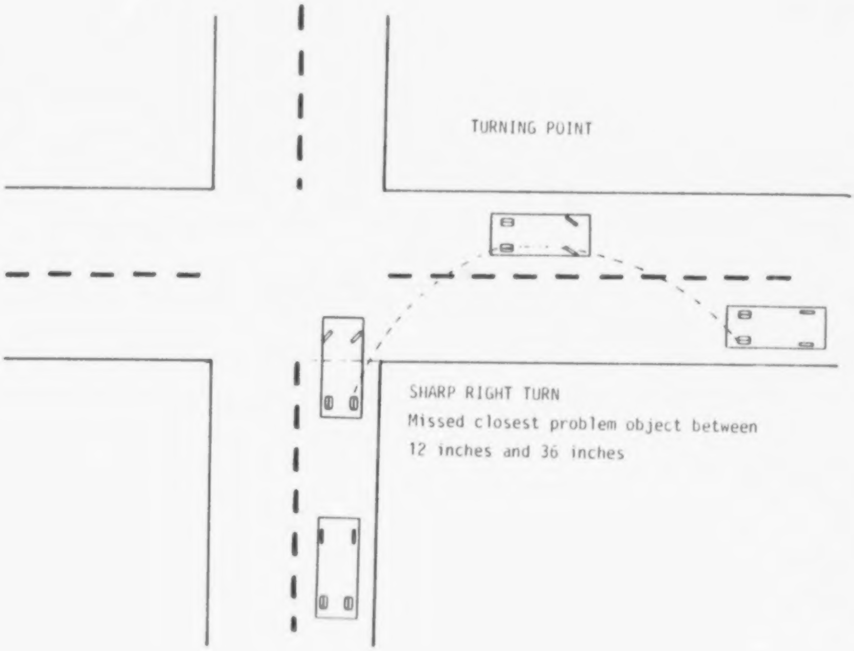
REFERENCE	**CONTENT**

When the vehicle completes the turn, you should have missed the closest right-side problem object with the right side of the vehicle by at least 12 inches and no more than 36 inches. If the vehicle is more than 36 inches away from the closest right-side problem object, you have not established the correct turning point for that vehicle.


TURNING POINT
SHARP RIGHT TURN
Missed problem object between
12 inches and 36 inches

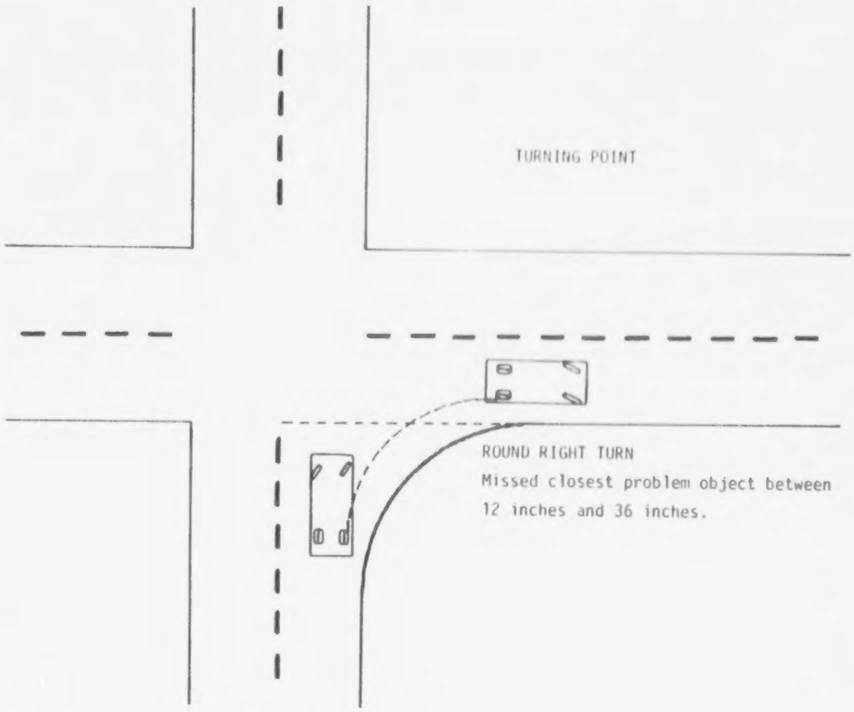
REFERENCE	CONTENT

At the completion of a sharp right turn the vehicle should have cleared the closest right-side problem object by at least 12 inches and no more than 36 inches and should be positioned toward the center and parallel to the edge of the roadway.


TURNING POINT
SHARP RIGHT TURN
Missed closest problem object between
12 inches and 36 inches

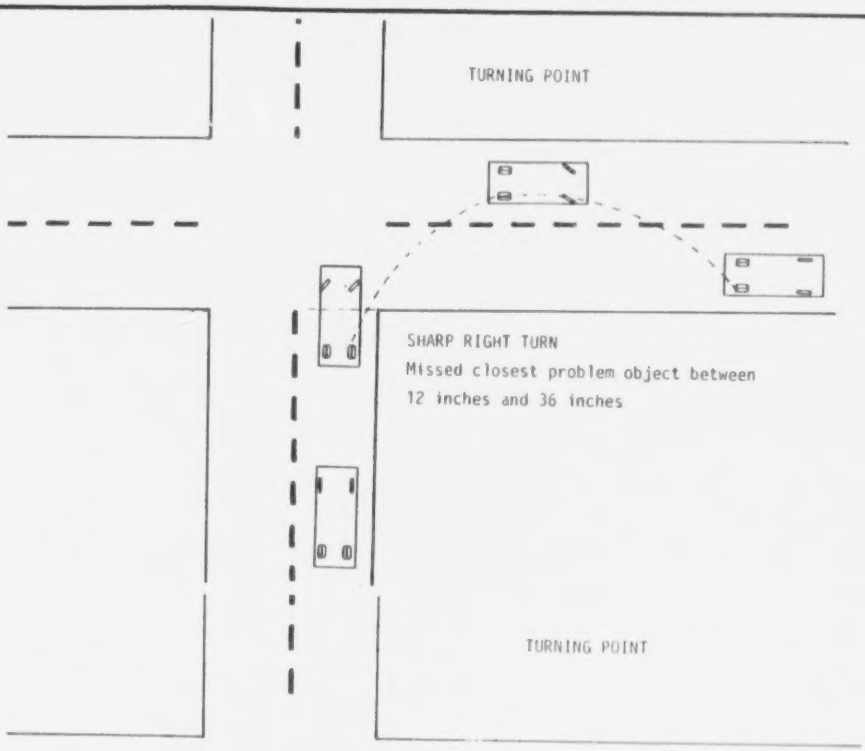
At the completion of a rounded right turn the vehicle should have cleared the closest right-side problem object by at least 12 inches and no more than 36 inches and should be parallel and near the right edge of the available roadway.

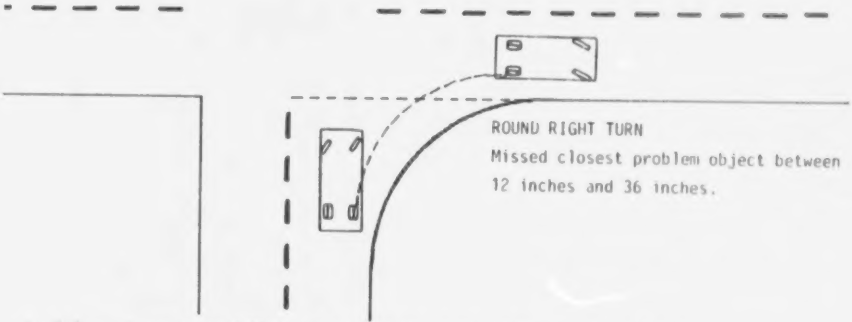
REFERENCE | **CONTENT**



ROUND RIGHT TURN
Missed closest problem object between
12 inches and 36 inches.

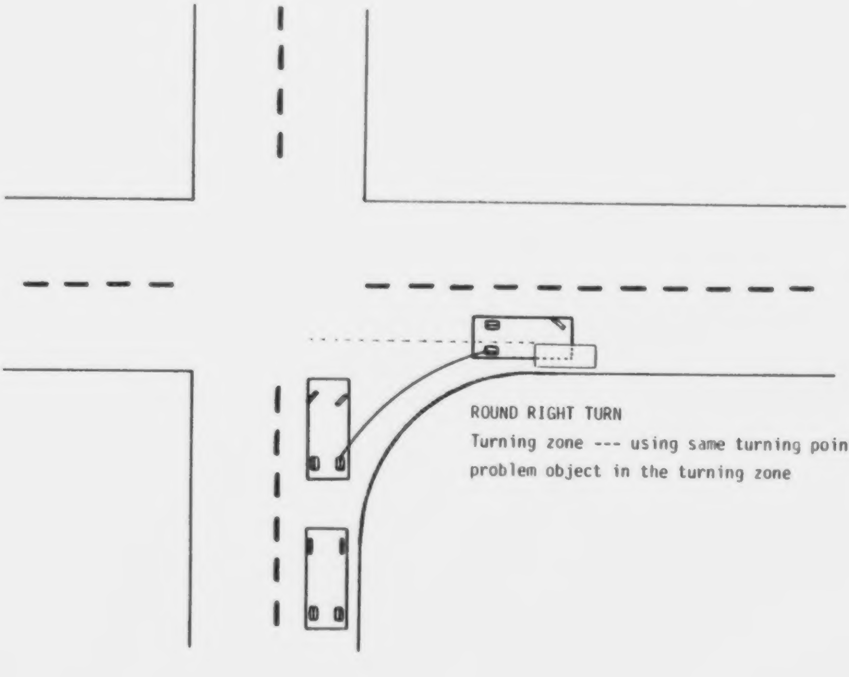
The main difference between the sharp right turn and the rounded right turn is that on the sharp turn you must move the vehicle further into the intersection before you turn the vehicle. In so doing, you end up closer to the center of the available roadway. On a rounded turn you can start your turn sooner and still clear the problem objects. This allows your vehicle to end up closer to the right edge of the available roadway.


TURNING POINT
SHARP RIGHT TURN
Missed closest problem object between
12 inches and 36 inches
TURNING POINT


ROUND RIGHT TURN
Missed closest problem object between
12 inches and 36 inches.

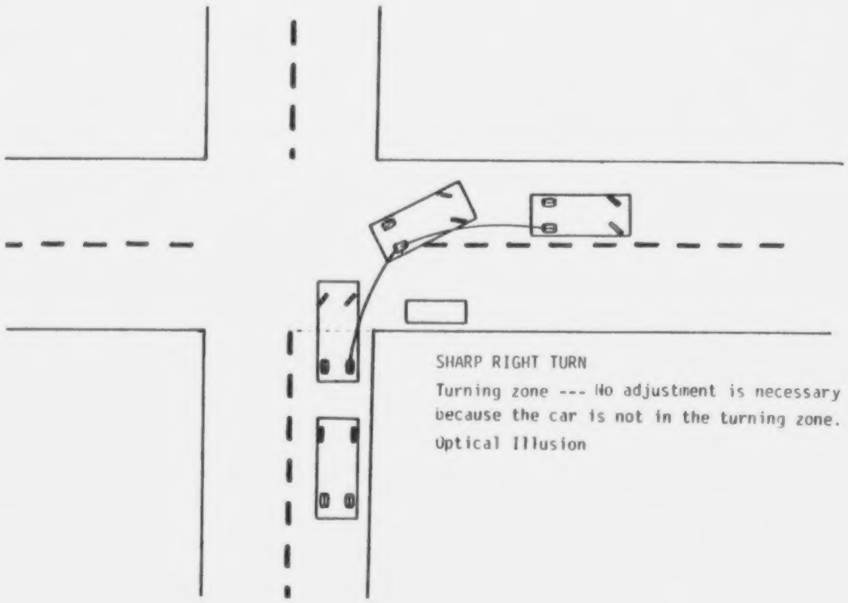
A driver must establish the turning point for each vehicle operated. This also applies to each different turn. After learning the turning point for a sharp turn and a rounded turn, the driver should know when to turn the vehicle.

To determine the correct turning point when a problem object is located in the turning zone, the trainee must understand how to adjust the imaginary line. The trainee must also have the ability to distinguish between an optical illusion and something that is real.



ROUND RIGHT TURN

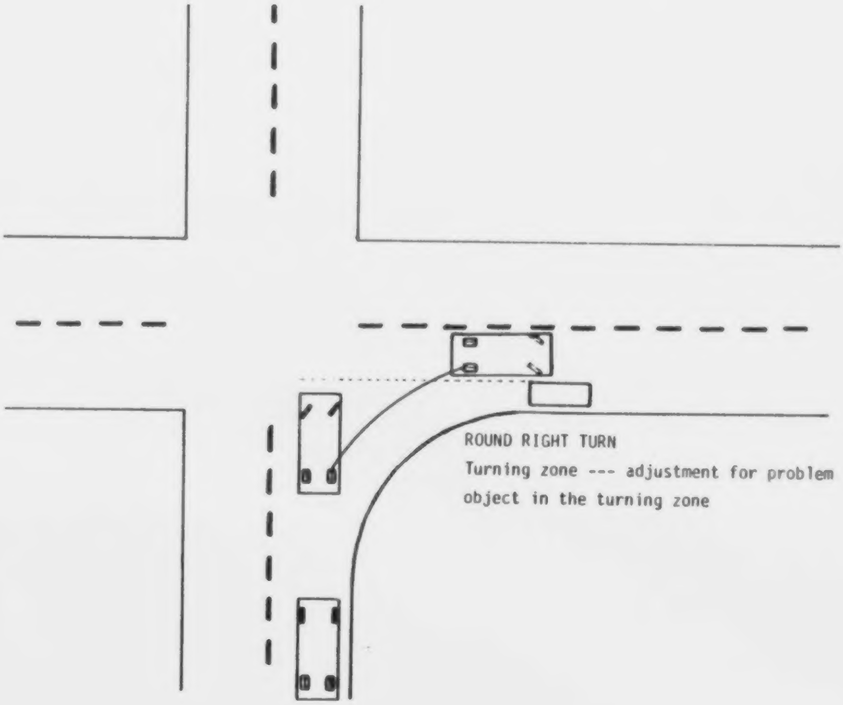
Turning zone --- using same turning point problem object in the turning zone



SHARP RIGHT TURN

Turning zone --- No adjustment is necessary because the car is not in the turning zone.

Optical Illusion



ROUND RIGHT TURN

Turning zone --- adjustment for problem object in the turning zone

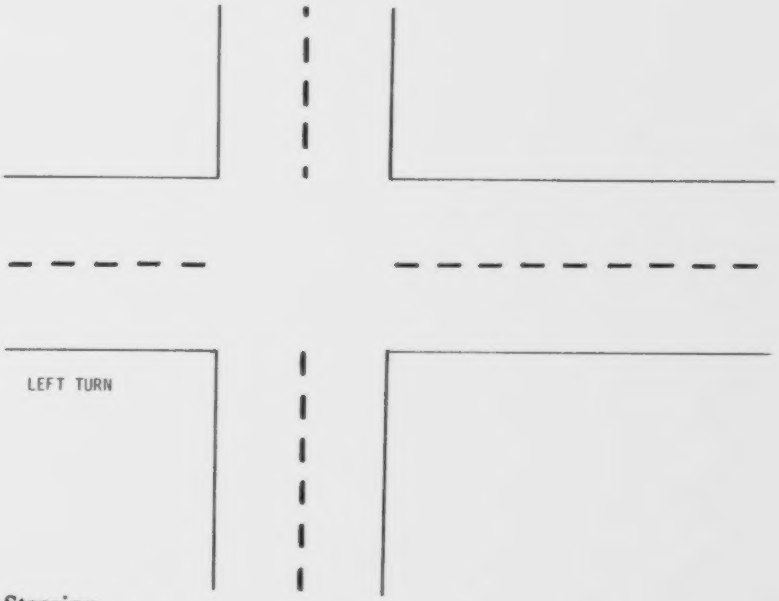
REFERENCE | **CONTENT**

Vehicle Turning Range

Once the driver has correctly identified the vehicle turning point for a sharp 90-degree right turn and the vehicle turning point for a rounded right turn, the driver can then determine the turning range, which is the distance between the turning point for a sharp turn and the turning point for a rounded turn. The driver knows that in a particular vehicle a safe turn can be made using a turning point somewhere in this range for any right turn encountered.

Left Turn (Two-Way Road)

Let us now discuss the fundamentals of successfully completing a left turn. For the most part the principles are the same. Therefore, the driver must identify the potential problem objects in preparation to execute the turning maneuver.

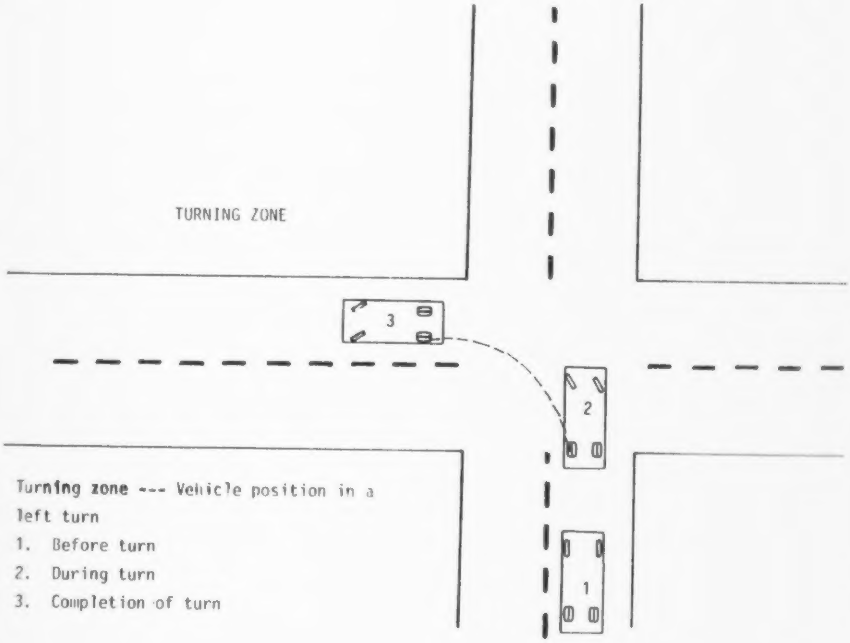


Steering

Remember, it is the rear of the vehicle that must be correctly steered through the turn, but do not forget the right front corner of the vehicle.

Turning Zone

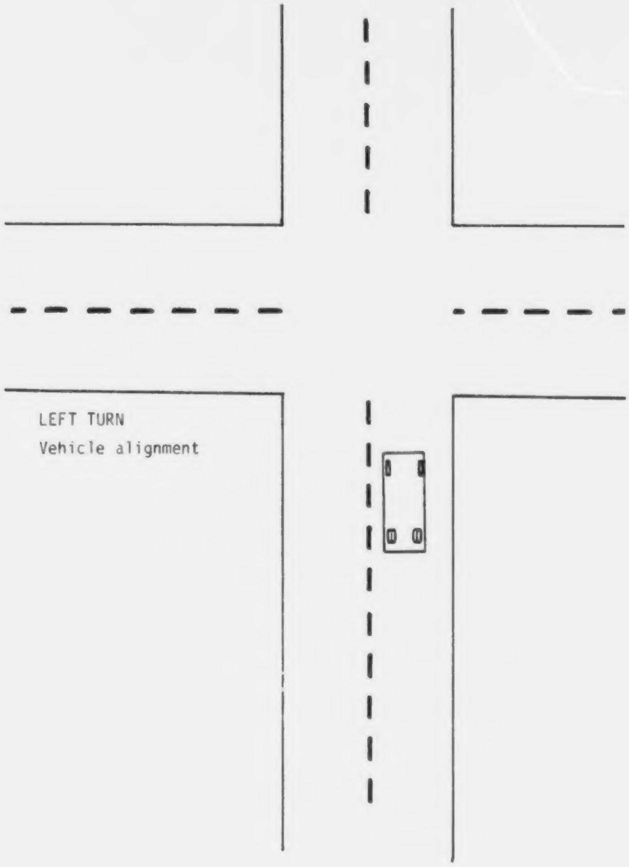
The turning zone is the safe space needed before, during, and at the completion of a turn.



Turning zone --- Vehicle position in a left turn
1. Before turn
2. During turn
3. Completion of turn

Vehicle Alignment

A major objective is steering the vehicle through the turn without contacting any problem objects. To reduce the risk of contact with either fixed or movable problem objects, the following vehicle alignment is recommended. At the beginning of the turning zone, the vehicle should be aligned parallel to the roadway, 18 to 36 inches from the centerline or center of the roadway if no centerline exists.



LEFT TURN
Vehicle alignment

Problem Objects

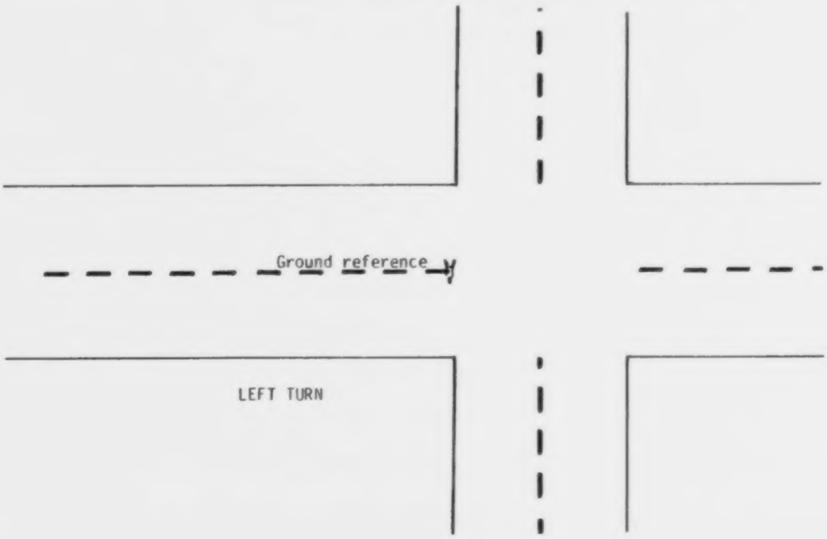
The driver must be aware of problem objects when attempting to make a left turning maneuver. Many times the driver is unaware of objects that may cause a problem in a left turn. A driver must be conscious of other traffic and vehicles, whether the driver's vehicle is moving or stationary. The driver must consider if these problem objects are actually in the turning zone, or if they are an optical illusion. The driver is vulnerable during this maneuver because moving objects may be approaching from every direction. The driver must understand that once the vehicle is committed to the turn, it is difficult to observe all the hazards within the intersection.

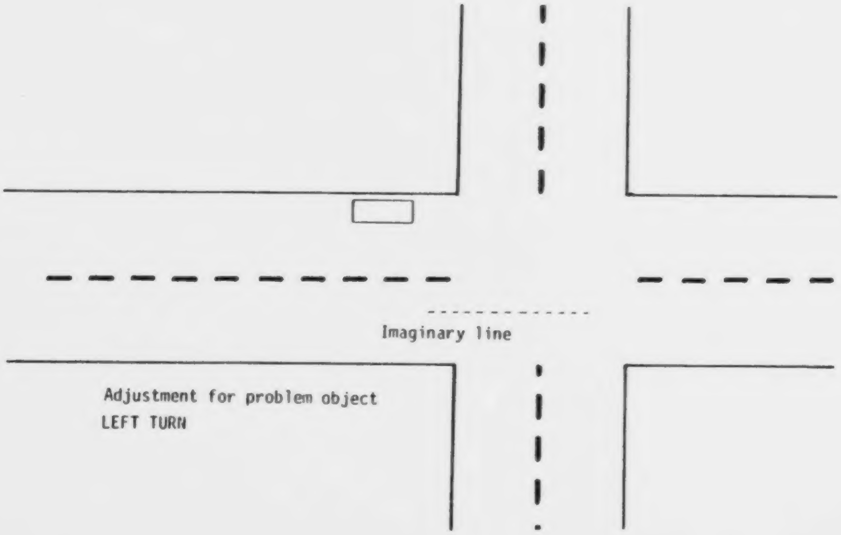
Vehicle Reference

The vehicle reference is the front bumper.

Ground Reference/Imaginary Line

The ground reference is located at the left edge of the available roadway you are turning onto. Mentally project a straight line from the ground reference across the roadway your vehicle is on at approximately a right angle. From now on this line will be referred to as the imaginary line. If a problem object is in the turning zone, you must reposition the ground reference and imaginary line accordingly.


Ground reference
LEFT TURN

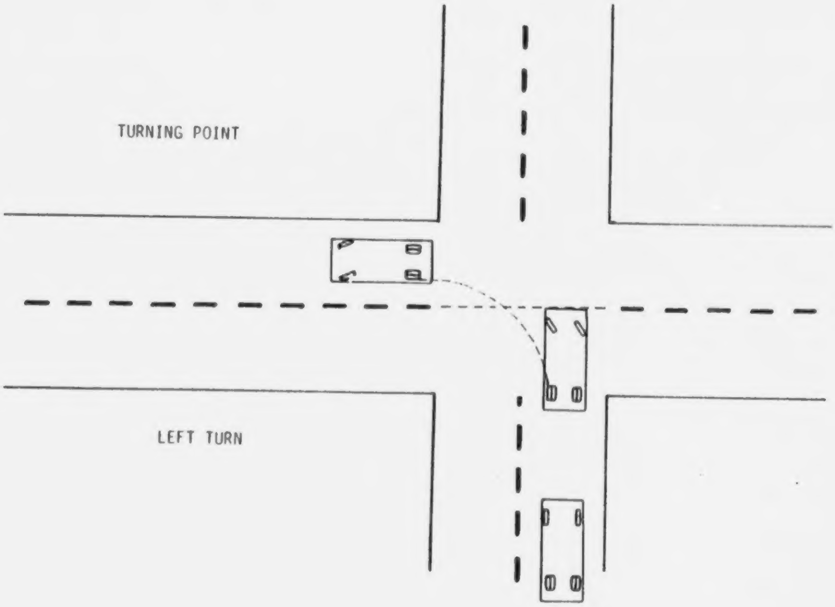

Imaginary line
Adjustment for problem object
LEFT TURN

REFERENCE	CONTENT

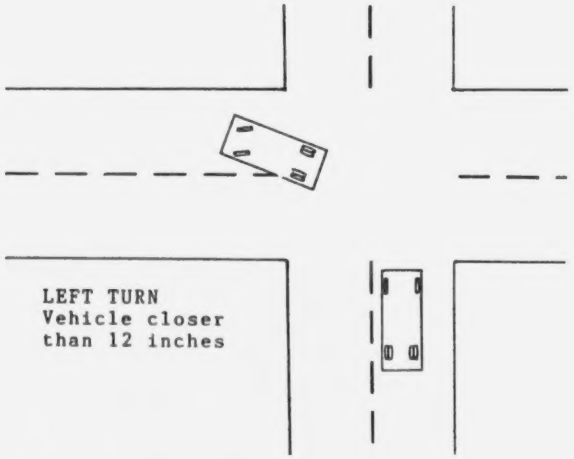
Turning Points

To find the turning point for a vehicle, use the following procedure:

1. Maintaining the correct vehicle alignment, move the vehicle forward until the vehicle reference (front bumper) and imaginary line intersect.
2. Turn the steering wheel full lock left and hold. Using dead throttle, begin moving the vehicle into the turn, watching the mirrors to see if the vehicle will clear all problem objects in the turning zone. Remain in the full lock left position until the vehicle has completed the turn and is parallel to the edge of the roadway and stopped. DO NOT STRAIGHTEN THE FRONT WHEELS.

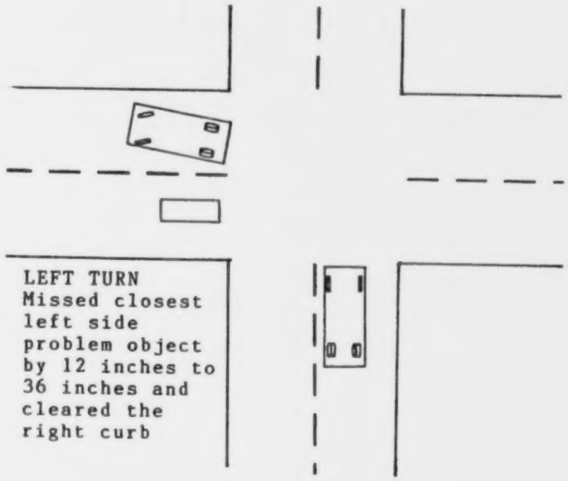


REFERENCE	CONTENT
	If it is apparent that the vehicle is going to contact a problem object, stop before contact is made, reposition the vehicle with respect to the imaginary line, and try again.



LEFT TURN
Vehicle closer
than 12 inches

At the completion of the left turn, the vehicle should have missed the closest left-side problem object with the left side of the vehicle by at least 12 inches and not more than 36 inches. If the vehicle is closer than 12 inches from the problem object, the correct turning point has not been established for the vehicle. There may also be problem objects located on the right side of the vehicle.


LEFT TURN
Missed closest
left side
problem object
by 12 inches to
36 inches and
cleared the
right curb

At the completion of a left turn, the vehicle should be parallel and toward the center of the traffic lane.

A driver must know where the imaginary line is in relation to the vehicle once the turning point is established. Remember, when using a different vehicle or encountering a turn with a different radius, the driver must establish the turning point for that vehicle.

Driver Conditioning

To achieve the desired competency level of all types of turns, the driver must develop correct habit patterns. This is accomplished by teaching the driver how to correctly make the turn and then placing the driver in a turning situation in which the vehicle cannot make the turn. Finally, the driver must repeatedly drive the vehicle through all types of turns and under all types of conditions.

REFERENCE	CONTENT
	Throughout a driver's career new driving habits are developed and existing habits are reinforced. It is important to know that a new driver's current driving habits were developed in a vehicle other than a large bus. Therefore, correct vehicle driving habits must be reinforced continuously.

REFERENCE

CONTENT

PRECISION PARALLEL PARKING PROCEDURES

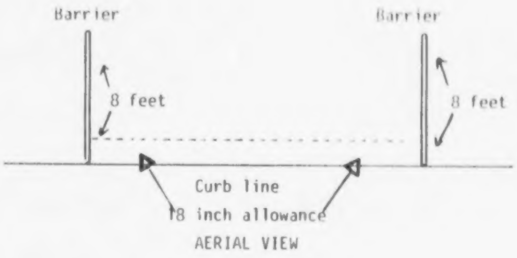
PURPOSE:

To provide each driver with the knowledge to safely parallel park the vehicle

OBJECTIVES:

1. Teach the correct positioning of the vehicle during a parking maneuver.
2. Reinforce the previous lessons that include the correct use of the mirrors, proper backing maneuvers, and proper use of the turn signals.
3. Refine depth perception skills to increase the trainee's perceptual abilities during a parking maneuver.

REFERENCE	CONTENT
	NOTE: When teaching this lesson, the instructor should simulate the situation for the driver. The instructor may prefer to use a painted line or a taped line to represent an actual curb. This will prevent damage to the tires from contact with the curb. The lesson will require two adjustable barriers 4 feet tall and 7 to 8 feet in length. The barriers need to be placed at each end of the stall at right angles to the curb.


Barrier
Barrier
8 feet
8 feet
Curb line
18 inch allowance
AERIAL VIEW

REFERENCE **CONTENT**

Different types and sizes of vehicles require different setups. They are as follows:

1. Transit - The parking space is equal to the length of the vehicle plus 6 feet.
2. Conventionals - The parking space is equal to the length of the vehicle plus 7 feet.
3. Vehicles less than 7 feet 6 inches in width - The barrier is to be 7 feet in length, and the parking space is the length of the vehicle plus 6 feet.

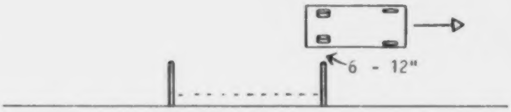
To be proficient in this procedure, the driver must be able to back into the parking space without hitting either the front or rear barrier and without touching the curb with the tires. The vehicle should be parallel and no more than 18 inches from the curb on completion of the maneuver. This distance from the curb is in compliance with the California Vehicle Code Section 22502. The driver also must be able to pull out of the parking space without hitting the barriers.

The driver makes the maneuver with the parking space positioned on the right side of the vehicle. This procedure should be performed as though the driver was in a lane of traffic with other motorists.

When making the approach to the parking space, the driver must signal in advance to warn other motorists. The driver must ensure that the vehicle is parallel to the parking space. The driver needs to constantly monitor the mirrors on both sides of the vehicle.

Procedures:

1. Check the left flat mirror for traffic flow.
2. Activate the right turn signal.
3. Position the vehicle parallel to the curb approximately 6 to 12 inches from the outside edge of the barriers. Stop the vehicle when the rear axle is even with the front barrier.



4. Turn the steering wheel full lock right. Recheck the traffic and sound horn. When safe to do so, place the transmission in reverse and start to back slowly.
5. When the driver can see the inside edge of the back barrier in the left flat mirror, straighten the wheel (Diagram A). Continue to back carefully until the right rear bumper reaches the curb or line (Diagram B).

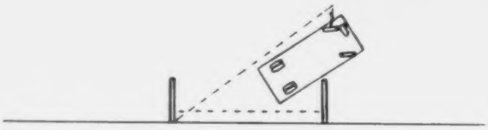


Diagram A

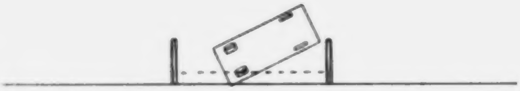
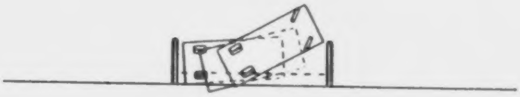


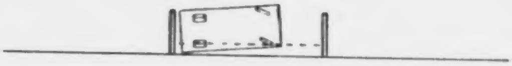
Diagram B

REFERENCE	CONTENT

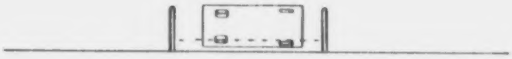
6. Turn the steering wheel full lock left until the vehicle clears the front barrier. Continue monitoring the right flat mirror until the back outside dual tire is approximately 12 inches from the curb. The front of the vehicle should be approximately 3 to 4 feet behind the front barrier. When the rear axle is 6 inches from the curb, stop the vehicle.



7. Turn the steering wheel full lock right. Drive the vehicle forward while adjusting the steering wheel.



8. When the vehicle is parallel and within 18 inches of the curb or curb line, stop.



The driver must use the ground reference in conjunction with a vehicle reference to know the exact position of the vehicle. The vehicle references used in this lesson are guidelines only. The exact vehicle reference will depend on the turning capabilities of the vehicle being used.

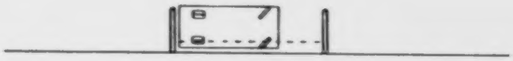
NOTE:

Before teaching this procedure, it is important that the instructor position the vehicle in the parking stall within these guidelines. The instructor must also know the vehicle and ground references. Explain to the trainees how to distinguish these references. Instruct the drivers that, if they are ever in doubt while backing, they should get out and take a look. It is better to check it now than hit something later.

Pulling Out of a Parking Space

Procedures:

1. Place the transmission in reverse and slowly and carefully back the bus until it is approximately 1 foot from the back barrier.
2. Check the mirrors (as directed from the mirror guide) before entering traffic from the right.
3. Turn the steering wheel full lock left.



4. Recheck mirrors and activate left turn signal.
5. Pull out slowly, watching the front barrier, and check the rear swing of the vehicle which could strike a problem object. If the vehicle cannot clear the barrier without backing, continue to step 6. If the vehicle can clear the barrier, go to step 8.

REFERENCE	CONTENT
	6. Stop the vehicle within 1 foot of the front barrier, turn the steering wheel full lock right, sound horn, and back slowly, while watching the right flat mirror. Do not contact the curb with the back tires. Continue to monitor mirrors closely. 7. Back up approximately 3 feet and stop the vehicle. Turn the steering wheel full lock left, recheck the mirrors, and, when safe to do so, enter traffic. 8. When the vehicle is able to clear the front barrier, straighten the steering wheel and cancel the left turn signal.

DRIVER PERFORMANCE REVIEW

SKILLS LEVEL TWO

The driver must successfully demonstrate competence in each task listed in this skills level before progressing to the next skills level. On completion of each task, the behind-the-wheel trainer or state-certified instructor is to initial and date the driver performance review. **THE STATE-CERTIFIED INSTRUCTOR'S SIGNATURE VERIFIES THE DRIVER'S COMPETENCY IN THIS SKILLS LEVEL.**

INSTRUCTOR'S SIGNATURE ______________________ **ID NO.** ________ **DATE** ________

DRIVER'S SIGNATURE ______________________ **EQUIPMENT CODE** ________ **BRAKE CODE** ______

NOTE: Time designation should be logged in ¼-hour minimums per square.

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
BACKING										
1. Blind areas										
2. Straight-line backing										
3. Gradual backing crossover										
4. Sharp backing crossover										
5. Backing weave										
6. Backing into a stall										
7.										
8.										
TURN SIGNALS/HAZARD LIGHTS										
1.										
2.										
FIVE-COUNT MIRROR SYSTEM										
1.										
2.										
3.										
4.										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
PRECISION TURNING PROCEDURES 1. Problem objects										
2. Turning zone										
3. Vehicle alignment										
4. Ground reference										
5. Vehicle reference										
6. Turning points										
7.										
8.										
9.										
PARALLEL PARKING PROCEDURES 1. Backing in										
2. Curb position										
3. Driving out										

INSTRUCTOR'S

BEHIND-THE-WHEEL GUIDE
FOR
CALIFORNIA'S BUS DRIVER'S TRAINING COURSE

SKILLS LEVEL THREE

TRANSMISSION CONTROL AND SHIFTING PROCEDURES

CONTENTS PAGE

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SHIFTING GRAPH
SHIFTING CHART
DRIVER PERFORMANCE REVIEW

REFERENCE **CONTENT**

PURPOSE:

To explain the double-clutching procedures, stress the need for throttle control, and teach the methods for finding correct shifting points

To teach the trainee to become proficient in transmission control, reduce the maintenance costs to the employer, and give the trainee the confidence needed to be a good professional driver

OBJECTIVES:

Achieve trainee proficiency in:

1. Proper throttle control
2. Proper use of transmission

NOTE TO THE INSTRUCTOR:

Each trainee will establish a solid career foundation once the operational techniques in this skills level are mastered.

It is the instructor's responsibility to provide a positive and successful learning experience for each trainee. The instructor must be able to demonstrate, under actual operating conditions, each skill contained in this skills level. Thus, the trainee will be able to observe correct operating and driving procedures in action and to gain a better understanding of what is expected of a successful driver.

The following guides should be incorporated in the instruction:

1. Explain and demonstrate each procedure.
2. Give reasons for each procedure.
3. Use simple, clear terminology.
4. Stress key points. Explaining too much at one time may confuse the trainee.
5. Give the trainee a chance to ask questions and give feedback.
6. Use individualized instruction when necessary. People learn at different rates.
7. Test all trainees at every step and let them know how they are doing. Maintain a positive and helpful attitude. Make the learning experience a successful one.
8. Ensure that the trainee understands all the terms in the glossary.

SHIFTING LESSON - GLOSSARY OF TERMS

ADVANCED THROTTLE CONTROL

Being able to quickly adjust and control the engine rpm to match the vehicle's road speed, in order to make correct shifts when going up or down hill

CLUTCH BRAKE

A friction device in the clutch assembly that stops the engine gears in the transmission from turning when the clutch pedal is depressed to the floorboard

CLUTCH PEDAL

The pedal that engages or disengages the clutch (The term "disengage" means to separate the engine power from the rest of the drive train.)

DEAD THROTTLE START

Moving the vehicle from a stopped position using no throttle application

DOWNSHIFT

Shifting the transmission to a lower gear

ENGINE GEARS

The gears in the transmission controlled by the engine when the clutch is engaged

ENGINE SPEED

The revolutions per minute (rpm) the engine is running

EXACT SHIFTING POINT

A point at which the gears in the transmission, which are controlled by the engine speed, are rotating at exactly the same speed as the gears in the transmission that are controlled by the road speed

GEAR RANGE

The range between the top road speed and the bottom road speed of a gear

REFERENCE	CONTENT

GEAR SPLIT	The range between the top rpm and the bottom rpm of a gear
MIDRANGE SHIFT	A shift that is made somewhere between the top and bottom of the gear range
MINIMUM THROTTLE START	Moving the vehicle from a stopped position using minimum throttle application
REESTABLISHING ROAD SPEED	After a top road speed for a certain gear has been established and a shift to a higher gear has been completed, returning the vehicle to the top road speed established prior to the shift
RIDING THE CLUTCH	Placing and leaving the left foot on the clutch pedal (This could shorten the life of the clutch release bearing and may result in slipping the clutch.)
ROAD SPEED	Miles per hour (mph) the vehicle is traveling
ROLLING UP RPM'S	Raising engine rpm gradually
SETTING UP THE VEHICLE SHIFTING POINTS	Applying a method to find the exact shifting points for a vehicle
SHIFT LEVER	Gear shifting device located in driver's compartment
SHIFT PATTERN	A diagram showing the location of the gears
SLIPPING THE CLUTCH	When the clutch is only partially engaged, not allowing total power to transfer from the engine to the transmission
SPEEDOMETER	An instrument that records road speed of the vehicle (mph)

REFERENCE | **CONTENT**

SUSTAINED LUGGING

Overfueling the engine for a long period of time; for example, climbing a long grade

TACHOMETER

An instrument that records engine speed (rpm)

TEMPORARY LUGGING

Overfueling the engine for a short period of time; for example, pushing the throttle all the way just after completing an upshift

THROTTLE

The pedal (accelerator) that controls the amount of fuel going to the engine and thus raises or lowers engine rpm

THROTTLE CONTROL

The regulating of engine rpm by the driver through the use of the throttle pedal (accelerator); or the raising or lowering of engine rpm in a controlled manner

TOP TACHOMETER SETTING

The top rpm at which the engine is to be efficiently operated (This figure will change depending on the type of engine being used.)

UPSHIFT

Shifting the transmission to a higher gear

WHEEL GEARS

The gears in the transmission controlled by the drive wheels

VEHICLE SELECTION

The criteria for the selection of vehicles are as follows:

1. It is mandatory that the vehicle have a good working speedometer to indicate the vehicle's road speed (mph).
2. It is strongly suggested that the vehicle have a good working tachometer to indicate the engine speed (rpm).

The above two instruments will provide the driver with the information needed to correctly shift the transmission and minimize wear on the clutch and transmission. These instruments, used correctly, will reduce maintenance cost.

3. The vehicle should be in good working order and all the controls adjusted properly; for example, shift linkage, clutch, and so forth.

By using a vehicle that is in good mechanical condition, the trainees will be able to establish a proper frame of reference that they can use throughout their driving career.

SITE SELECTION

Site selection for this skills level is extremely important. The driver may be under a lot of stress during this time. Generally, individuals will comprehend and retain information better if they are under less strain. The site selected for this lesson should be free from traffic, and the roadway must be as straight and flat as possible. By selecting this type of site, the instructor will be able to concentrate on what the trainee is doing and not have to watch for traffic, thus relieving stress. Success in this skills level depends largely on the ability of the instructor to select a proper and adequate training site. Searching for a suitable site may take time, but the difference it makes in the training program for this skills level will benefit the organization.

REFERENCE	CONTENT

THROTTLE CONTROL

Throttle control, during actual driving, is required in order to correctly shift gears in the transmission. The better control the trainee has of the throttle, the smoother the shift will be. The correct procedure for teaching throttle control is as follows:

1. Place transmission in neutral or park and start the engine.
2. Identify and explain the top tachometer setting.
3. Allow the trainee to become thoroughly familiar with the throttle.
4. Have the trainee roll the tachometer up and down to different settings and hold. The better control the trainee has of the throttle, the easier the shifting procedure will be.
5. Give the trainee enough time to develop good throttle control.

DOUBLE-CLUTCHING PROCEDURE

The double-clutching procedure enables the trainee to control the speed (rpm) of the engine gears in order to correctly match those gears to the speed of the wheel gears (mph) during a shift. When performed correctly, this procedure also eliminates slipping of the clutch.

The instructor should explain to the trainee the five-count double-clutching procedure (with engine off).

The steps to successfully teach the double-clutching procedure are:

1. Disengage (open) the clutch (clutch down) and move the gearshift lever into neutral.
2. Engage (close) the clutch (clutch up).
   Between steps 2 and 3 of this procedure, the trainee should adjust the engine rpm's to a specific point and hold steady.
3. Disengage (open) the clutch (clutch down).
4. Move the gearshift lever into the proper gear.
5. Engage (close) the clutch (clutch up).

The trainee must be able to demonstrate this procedure proficiently before continuing.

ESTABLISHING EXACT SHIFTING POINTS FOR A STANDARD TRANSMISSION

To establish the exact shifting points for a vehicle equipped with a standard transmission, the driver must:

1. Determine the top engine rpm for the vehicle to be used. (This information should be available in the owner's manual or operator's manual.)
2. Read the engine speed (rpm) (tachometer).
3. Read the vehicle road speed (mph) (speedometer).
4. Know how to correctly control and match the engine speed with the road speed (correct throttle control).

NOTE:

Demonstrate the correct shifting procedure to the trainee.

Procedure for Establishing Exact Shifting Points

The following procedure for establishing the exact shifting points will work on any vehicle equipped with a standard transmission and a speedometer and tachometer in proper working order.

1. Shift into the starting gear.
2. Use dead or minimum throttle starting procedure.
3. Gradually accelerate to the top tachometer setting.
4. While holding the throttle steady at the top tachometer setting, note the road speed (mph).
5. When the top road speed (mph) for the starting gear has been established, shift to the next highest gear. Note: Make this shift easy. The shift may be a little rough because the shift point for the next higher gear has not yet been established.

6. When you are in the next higher gear, reestablish the top road speed of the previous gear. Make sure the vehicle is moving at exactly the same road speed and the throttle is steady. Look at the tachometer and note the engine speed (rpm). This rpm at the noted road speed (mph) is the exact shift point to be used when shifting from the starting gear to the next higher gear.
7. Repeat the above procedure for each gear in the transmission to establish the exact shift points for all gears.

Develop a shifting graph for the trainee.

NOTE:

Work with only one upshift until the trainee becomes proficient. Once the trainee is proficient, move to two upshifts and so on. Do not work with downshifting until the trainee understands and is proficient with upshifting.

SHIFTING PROCEDURES FOR A STANDARD TRANSMISSION

Upshifting

The trainee should, at this time, practice using the exact shift points just established. When the instructor is sure the trainee is comfortable with this process, continue with the rest of the lesson. The trainee should have now found the gear ranges and the gear split for each gear in the transmission. Explain this to each trainee.

Upshifting with a 10-Speed Transmission

When upshifting a 10-speed transmission, the driver may choose to skip a gear when appropriate. The driver should establish the exact shift points if this option is selected. Follow the procedure listed below to find the exact shift points:

1. Shift into the starting gear.
2. Roll the tachometer to the top tach setting.
3. Hold the throttle steady and note the road speed.

4. Shift to the next selected gear, skipping one gear range (for example, 1st to 3rd, or 2nd to 4th)
5. Reestablish the vehicle road speed of the previous gear and note the tachometer setting. This gives you an exact shift point to use when skipping a gear while upshifting.

Develop a shifting graph for the trainee.

Downshifting

Definition: Shifting the transmission to a lower gear

The driver must remember the gear ranges and gear splits to successfully complete the downshifting procedure.

In downshifting while using the top road speed of each gear range, the driver must also use the top tachometer setting. In downshifting while using the bottom road speed of each gear range, the driver must also use the bottom tachometer setting. The following are two examples that should help trainees learn the correct procedures for downshifting:

If the trainee is downshifting from 5th gear to 4th gear, the trainee must reestablish the top road speed of 4th gear and hold it steady. The trainee is to disengage the clutch, place the transmission in neutral, engage the clutch, roll the tachometer to the top, hold throttle steady, disengage the clutch, shift the transmission into 4th gear and engage the clutch. The trainee has now completed a downshift. The driver is to use the same basic procedure when downshifting from any gear to the gear selected. Remember, if the road speed drops, the driver must also drop the tachometer setting with the throttle.

When downshifting, using the bottom road speed of a gear range, it is necessary to use the bottom tachometer setting. If the transmission is in 5th gear and the road speed is at the bottom of 4th gear, the driver must disengage the clutch, place the transmission in neutral, engage the clutch, set the tachometer at the bottom tach setting for 4th gear, hold the throttle steady, disengage the clutch, place the transmission in 4th gear, and engage the clutch. The trainee has now successfully completed a downshift using the bottom tachometer setting and bottom road speed.

Skipping a Gear

Shifting gears in the transmission by skipping at least one gear range (for example, 5th to 3rd, 4th to 1st)

The trainee needs to be very comfortable with the upshifting and downshifting procedures and proficient in the proper use of throttle control before he or she can start this exercise. The trainee has to know the top and bottom road speeds for each gear and the correct shift points in order to perform this exercise successfully. The following are two examples of making correct downshifts in skipping gears:

Example A
Downshifting from 5th to 3rd

1. Set the top road speed for 3rd gear.
2. Disengage the clutch and shift the transmission to neutral.
3. Engage the clutch.
4. Roll tachometer up to the correct rpm for the top of 3rd gear and hold the throttle steady.
5. Disengage the clutch.
6. Shift into 3rd gear.
7. Engage the clutch.

Example B

Downshifting from 4th to 1st gear

1. Set the top road speed for 1st gear.
2. Disengage the clutch and shift transmission to neutral.
3. Engage the clutch.
4. Roll tachometer up to the correct rpm for the top of 1st gear and hold the throttle steady.
5. Disengage the clutch.
6. Shift into 1st gear.
7. Engage the clutch.

Using this method the driver can shift from any higher gear to any lower gear. These shifts can be made either at the top or bottom of a gear range.

Midrange Shift

A shift that is made somewhere between the top and bottom of a gear range

Midrange shifts usually are made during turning movements or when the vehicle's speed has been reduced without progressive downshifting.

To establish a correct midrange shift point, follow the procedure below. The following example is a midrange shift for 2nd gear in a 5-speed transmission:

1. Properly shift the transmission into 2nd gear.
2. Set the road speed of the vehicle where you want to establish the midrange shift point and hold steady (anywhere in that gear range).
3. Look at the tachometer and note the setting.
4. At that road speed (mph) and that tachometer setting (rpm), a shift into that gear can be made.

REFERENCE	**CONTENT**

Now have the driver apply the method, making the midrange shift that was just discussed. In the following example the driver will be making the shift from 3rd to 2nd gear.

1. Set the vehicle road speed at the predetermined speed and hold steady.
2. Disengage the clutch and shift transmission to neutral.
3. Engage the clutch.
4. Using throttle control, set tachometer at predetermined rpm setting and hold steady.
5. Disengage the clutch and shift transmission into 2nd gear.
6. Engage the clutch.

When the trainee understands this method, he or she will be able to establish the midrange shift points anywhere within a gear range. The trainee will be one step closer to becoming a master of the vehicle.

Shifting Split

The number of rpm's between the top tachometer setting of a gear and the bottom tachometer setting of the next gear

When the shift points are established, the driver has also determined the gear splits. For example, if the difference between the top rpm of a gear and the bottom rpm of the next higher gear is 500 rpm's, there is a 500-rpm shifting split. Shifting splits can be used to make either upshifts or downshifts. Let's use a downshift from 4th gear to 3rd gear as our example. It has been determined that there is a 500-rpm split between the top of 3rd gear and bottom of 4th gear. The following procedure should be used:

1. The vehicle is in 4th gear and the tachometer is reading 1,300 rpm.
2. Disengage the clutch and shift transmission to neutral.
3. Engage the clutch.

4. Using throttle control, roll tachometer up 500 rpm's (to 1,800 rpm's in this case) and hold steady.
5. Disengage the clutch and shift transmission into 3rd gear.
6. Engage the clutch.

Once the shift points have been established and the shifting splits have been determined, a driver can make an upshift or downshift whenever necessary.

SHIFTING WITHOUT A TACHOMETER

NOTE:

The following method can be used to teach a trainee to shift a vehicle that is not equipped with a tachometer.

Keep in mind when referring to the graphs that each vehicle may be different. You need to find out what the shifting points are before you start training. While setting up the vehicle, you should also determine whether the transmission has synchromesh gears. Synchromesh gears will make some difference in the feel when shifting. Such gears will also allow for much more error in engine rpm when shifting. It is important to use the throttle correctly in order to perform smooth shifts and save wear on the equipment.

Upshifting Without the Use of a Tachometer

Trainee in the bus

Engine off

Parking brake on

When you explain the process of double clutching, the trainee should be in the driver's seat. Have the trainee use the clutch and gearshift lever while learning. Use the five-count method to help explain each step of the double-clutching process. In explaining this process the instructor starts by assuming the vehicle is in motion. With this thought in mind, let's say the bus is in first gear and the driver depresses the throttle and holds a steady speed for just a second. At the moment when the weight of the vehicle is no longer accelerating, the driver starts the double-clutching procedure, as follows:

REFERENCE	CONTENT

1. Depress the clutch and move the shift lever to neutral. This is a critical move when shifting out of any gear. The hand should have light pressure on the shift lever in the direction of neutral. As the clutch pedal goes down, the driver feels the shift lever begin to move. The foot should lead the hand only slightly as movement continues - foot to floor - lever to neutral.
2. With clutch pedal up, release throttle to reduce engine rpm. The pedal stays up as engine rolls down.
3. Depress the clutch.
4. Shift lever to second gear.
5. Release the clutch.

Have the trainee perform these movements several times to learn the coordination of feet and hands. When the instructor feels that the trainee understands and can coordinate the movements, then it is time to begin learning this process with the engine running and the vehicle moving.

When the vehicle is moving, the trainee needs to develop the sense of feel as well as sound and sight.

Sense of Feel

1. Vibrations in the bus that indicate the engine is at top rpm
2. Vibrations in the bus that indicate lugging
3. Vibrations in the shift lever that indicate the gears are not synchronized
4. Lack of vibration in the shift lever that indicates the gears are synchronized

Sense of Sound

1. Sound of the vehicle that indicates the engine is at top rpm
2. Sound of the vehicle that indicates lugging

REFERENCE	CONTENT

3. Sound of the shift lever that indicates the gears are not synchronized
4. Sound of the vehicle that indicates the gears are ready to shift
5. Sound of the vehicle at various speeds

Sense of Sight

This might better be termed "sight patterns" or "sight habits," the idea being when or how often to look at gauges, and which gauges. When the trainee is learning to shift, he or she should learn how and when to use the speedometer. The instructor should teach the trainee how to find maximum speed for each gear. The maximum speed for each gear also establishes a shifting point for downshifting from a higher gear.

The senses we have just discussed will be developed while learning how to shift correctly and skillfully.

Bus in training area:

1. Little or no traffic
2. Level ground
3. Straight roadway for enough distance to perform two or three shifts

Trainee driving:

Instruct the trainee how to place the vehicle in gear.

1. Depress clutch.
2. Count to five slowly while waiting for the gears to stop rolling in the transmission before engaging gear.
3. Engage the clutch without adding rpm's too soon. "Dead throttle." The trainee has to learn to coordinate the movements between the throttle and the fully engaged clutch.
4. Accelerate to maximum governed engine speed. Look at the speedometer to establish maximum road speed for first gear.

5. With light pressure on the gearshift lever, depress clutch. As soon as pressure is relieved on the shift lever, move it to neutral.
6. Release clutch and wait while the engine rpm's roll down. The gearshift lever should be positioned toward second gear.
7. Using light pressure, but not enough to cause gears to clash, you can feel when the gears match or synchronize.
8. At the moment the shift lever begins to move into the gear, the clutch pedal is pushed down. At this moment ask the trainee to note the sound of the engine.
9. When the shift lever has entered the gear fully, the clutch is engaged immediately.

While these movements may be somewhat rough or uncoordinated, the trainee needs to continue to practice with direction from the instructor on what points to work on for smoothness. The trainee will, in time, begin to develop a sense of timing in terms of engine rpm drop, shift lever, and clutch pedal movement. The senses of feel, sound, sight, and timing gradually evolve into smooth, coordinated movements. This process is continued while progressively upshifting the transmission.

Downshifting Without Using the Tachometer

Discuss with the trainee how downshifting is similar to upshifting, except for one critical point. Instead of letting the engine rpm's drop when the gearshift is in neutral and the clutch pedal is up, the engine will be revved up. Go to the graph and point out how this works.

Allow the trainee to move the bus in the starting gear and progressively shift up to third gear. While maintaining road speed in third gear:

1. Disengage (open) the clutch (clutch down) and move the gearshift lever to neutral.
2. Engage (close) the clutch (clutch up).

3. Raise the engine to top rpm and hold, while performing steps 4 and 5.
4. Disengage (open) the clutch (clutch down) and move the gearshift lever to second.
5. Engage (close) the clutch (clutch up).

This same procedure is used to downshift to any gear as long as the road speed is at the maximum for the gear being selected.

Variations occur when the road speed is not at the maximum for the gear selected.

Example: (Midrange Shift)

If you are in third gear and the road speed is halfway between the bottom of second gear and the top of second gear, you would need to rev the engine to approximately half throttle to synchronize the shift into second gear.

SHIFTING PROCEDURES FOR AN AUTOMATIC TRANSMISSION

Automatic transmissions can be shifted two ways:

1. The driver can put the shift lever in "D" (drive) position, and the transmission will shift automatically.
2. The driver can "manually shift" the transmission, selecting and controlling each gear range as needed.

Procedures for establishing exact shifting points

1. Determine the top tachometer setting to be used.
2. Shift into the lowest gear range.
3. Accelerate to the top tachometer setting.
4. While holding the throttle steady at the top tachometer setting, note the road speed (mph).
5. Now that the top road speed has been established for that range, move the shift lever to the next highest gear range.

6. In the next gear range, reestablish the top road speed of the last gear range. Be sure the bus is rolling at exactly the noted road speed and the throttle is steady. Look at the tachometer and note the engine speed (rpm). This is the exact shifting point into the next gear range at that road speed.
7. Repeat this procedure for each gear range in the transmission.

By setting up an automatic transmission, and establishing the exact shift points for upshifting and downshifting, and establishing the gear splits, a driver can manually control the vehicle in all situations.

Some of the reasons for manually shifting an automatic transmission are:

1. Selecting the proper gear range for the speed you are traveling can avoid undue searching by the transmission for the required gear. This generally occurs at less than freeway speeds.
2. Selecting the proper gear range at the right time may assist the driver in keeping the engine rpm in the correct range to avoid unnecessary lugging while climbing grades.
3. Selecting the proper gear range is important while descending grades in order to help control the bus speed and help avoid heating the brakes.

NOTE:

Discuss the manual shifting method with your director and/or supervisor and consult the operator's manual before using the method.

SHIFTING A TWO-SPEED REAR AXLE

Shifting into the Low-Speed Ratio

1. On level grades or at high speeds:
    a. Keep the accelerator pedal depressed and push the switch control down.
    b. To complete the shift, release the accelerator pedal and then depress the accelerator again as quickly as possible.

2. On upgrades or at slow speeds:
   a. Keep the accelerator depressed and push the switch control down.
   b. To complete the shift, keep the accelerator depressed and disengage and reengage the clutch as quickly as possible.
3. On downgrades against the engine:
   a. Release the accelerator pedal and push the switch control down.
   b. To complete the shift, press down on the accelerator pedal enough to synchronize the gears; then immediately release the accelerator.

Shifting into the High-Speed Ratio

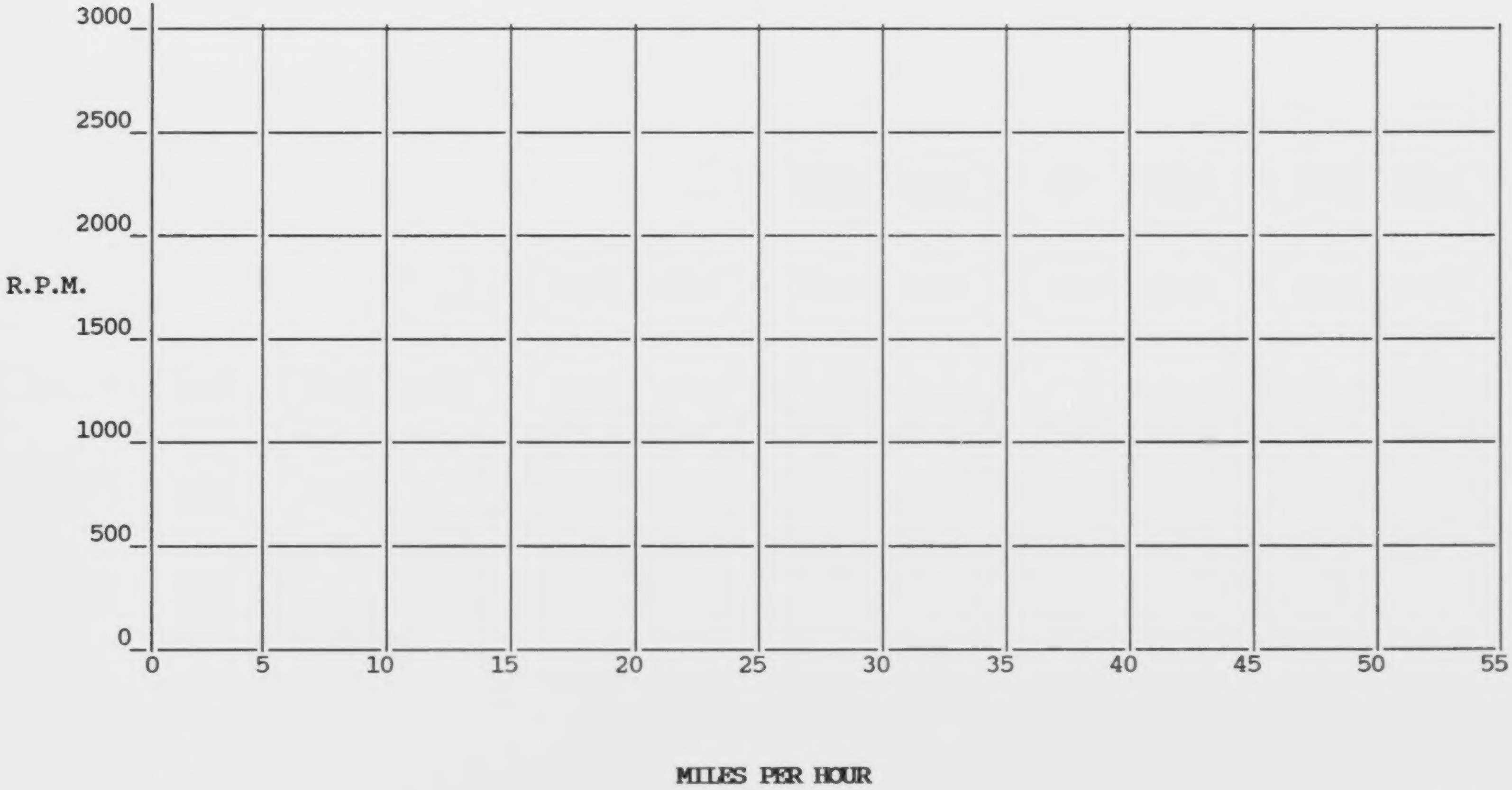
1. On downgrades against the engine:
   a. Release the accelerator pedal and pull the switch control up.
   b. To complete the shift, disengage and reengage the clutch with the accelerator pedal released.
2. At anytime except on downgrades against the engine:
   a. Keep the accelerator pedal depressed and pull the switch control up.
   b. Gradually release the accelerator to complete the shift. Do not depress the accelerator until the shift is completed.

Splitshifting:

To shift to the next higher gear in the transmission and at the same time from the high-speed to the low-speed axle, shift the transmission in the usual way and push the switch control down just before engaging the clutch.

REFERENCE	CONTENT
	To shift to the next lower gear in the transmission and at the same time from the low-speed to the high-speed axle, pull the switch control up and release the accelerator; then complete the transmission shift in the usual way. For best performance it is recommended that you park as well as start with the axle in the low range.

SHIFTING GRAPH



SHIFTING CHART

GEAR	GEAR RANGE (MPH)		GEAR SPLIT (TACH)	
	BOTTOM-----------TOP		BOTTOM----------TOP	

DRIVER PERFORMANCE REVIEW

SKILLS LEVEL THREE

The driver must successfully demonstrate competence in each task listed in this skills level before progressing to the next skills level. On completion of each task, the behind-the-wheel trainer or state-certified instructor is to initial and date the driver performance review. **THE STATE-CERTIFIED INSTRUCTOR'S SIGNATURE VERIFIES THE DRIVER'S COMPETENCY IN THIS SKILLS LEVEL.**

INSTRUCTOR'S SIGNATURE ______________________________ **ID NO.** **DATE** __________

DRIVER'S SIGNATURE ______________________________ **EQUIPMENT CODE** __________ **BRAKE CODE** _____

NOTE: Time designation should be logged in ¼-hour minimums per square.

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
THROTTLE CONTROL 1.										
2.										
STANDARD TRANSMISSIONS										
DOUBLE-CLUTCHING PROCEDURE 1.										
2.										
ESTABLISHING EXACT SHIFT POINTS 1.										
2.										
UPSHIFTING 1.										
2.										
DOWNSHIFTING 1.										
2.										
SKIPPING GEARS 1.										
2.										
3.										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
MIDRANGE SHIFT 1.										
2.										
SHIFTING SPLIT 1.										
2.										
AUTOMATIC TRANSMISSIONS										
ESTABLISHING EXACT SHIFT POINTS 1.										
2.										
UPSHIFTING 1.										
2.										
DOWNSHIFTING 1.										
2.										
GEAR SPLITS 1.										
2.										
TWO-SPEED REAR AXLE										
UPSHIFTING 1.										
DOWNSHIFTING 1.										
SPLITSHIFTING 1.										

INSTRUCTOR'S

BEHIND-THE-WHEEL GUIDE
FOR
CALIFORNIA'S BUS DRIVER'S TRAINING COURSE

SKILLS LEVEL FOUR

GENERAL DEFENSIVE DRIVING TECHNIQUES

CONTENTS

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DRIVER PERFORMANCE REVIEW

PURPOSE:

To help the trainee achieve competency in general defensive driving techniques as well as in the legal operation and control of the bus. Instill in the trainee the skills needed to safely accomplish crossing railroad tracks.

OBJECTIVES:

1. Teach the trainee general defensive driving techniques progressing from simple to complex driving environments.
2. Introduce the trainee to a variety of railroad crossings in the driving environment.
3. Identify regulations for operating a school bus across railroad tracks.
4. Enhance the trainee's ability to apply the legal and commonsense procedures for railroad crossings encountered.

NOTE TO THE INSTRUCTOR:

Lesson plans are presented in this section to cover the common aspects of defensive driving as well as the legal operation and control of the vehicle.

Important concepts of general defensive driving techniques in different operational settings are embedded in the lessons. Each lesson contains safety considerations that are unique to a specific driving terrain and may not be covered in another lesson.

This information on railroad grade crossings should be incorporated into each lesson where appropriate.

REFERENCE	CONTENT
	GENERAL DEFENSIVE DRIVING - GLOSSARY OF TERMS
VC 22502	APPROPRIATE EDGE Except as otherwise provided in this definition, every vehicle stopped on a roadway shall be stopped with the right-hand wheels of such vehicle at the right curb or barriers bounded by any roadway. Exception: Every vehicle stopped on a one-way roadway may be stopped with the left-hand wheels of such vehicle at the left curb or barriers bounded by any such one-way roadway. The provisions of this exception shall not apply on the roadways of a divided highway.
VC 235	BUSINESS DISTRICT A portion of a highway and the property contiguous thereto: (a) on one side of which highway, for a distance of 600 feet, 50 percent or more of the contiguous property fronting thereon is occupied by buildings in use for business; or (b) on both sides of which highway, collectively, for a distance of 300 feet, 50 percent or more of the contiguous property front thereon is so occupied. A business district may be longer than the distances specified in this section if the above ratio of buildings in use for business to the length of the highway exists.
	BUSINESS STRUCTURES Churches, apartments, multiple dwellings, houses, and public buildings other than schools
	CONSTANT SPEED Maintaining smooth and consistent speed control to improve efficiency and comfort
	GAP The space between vehicles into which the driver must merge when entering traffic

REFERENCE	CONTENT
VC 360	HIGHWAY A roadway or thruway that is publicly maintained and open to the use of the public for purposes of vehicular travel. (The term includes street.)
	LATERAL POSITIONING Selection of lanes and positions within groups of traffic to allow the greatest room to maneuver
VC 385 VC 21110	LOCAL AUTHORITY The legislative body of any county or municipality that has authority to adopt local police regulations (Local authorities may adopt rules and regulations by ordinance or resolution to require that all vehicles stop before entering or crossing the tracks at any highway railroad grade crossing when signs are in place giving notice thereof, but no such ordinance shall be effective unless approved by an order of the Public Utilities Commission.)
	METHODS OF COMMUNICATION Using the proper means of communicating with other drivers, for example, signals, horn, light, brake lights, hand position, eye contact, speed reduction. The act of transmitting the driver's intentions to other roadway users
	OBSTRUCTION Physical objects limiting visual distance
	REACTION The response the driver has after receiving information
	REACTION TIME The time delay between when the driver sees a hazard and when action is initiated
	REGULATORY SIGNS Signs with words and phrases that give directions to a driver and that must be obeyed just like any other traffic law

REFERENCE	CONTENT
	TIMING (Nonverbal communication) Giving adequate notice to other roadway users of the driver's intentions; for example, using the turn signal at the appropriate time when preparing for a turn
	VISUAL CHECK Specific checks of traffic at intersections and during driving maneuvers
	VISUAL FIX The direction in which the driver is looking while making a turn
	VISUAL LEAD The distance the driver looks ahead while driving

REFERENCE	CONTENT

YEHICLE SELECTION

Within this skills level it is advisable to have the trainee learn and develop general defensive driving techniques on the different types of vehicles they may operate. However, the vehicle(s) must be equipped as required by law and regulation and in safe operating condition.

SITE SELECTION

A. Rural Site Selection

Before teaching this lesson, the instructor should design and drive a training route in a rural area. The route should be planned for an area, rather than for specific streets and roads, to allow the flexibility necessary to repeat portions of the route or maneuver when the trainee experiences difficulty.

The instructor should establish a median between having turns and maneuvers too close together and having them so far apart that the trainee does not receive sufficient practice. When possible, plan a short series of maneuvers (three or four), followed by a period of straight driving. A pattern of this type allows the trainee and the instructor time to review the skills before moving into another skill or maneuver.

The rural route lesson should include but not be limited to the following characteristics:

1. A series of left turns
2. A series of right turns
3. Yield and stop intersections
4. Intersections with obstructed vision
5. Limited vehicle, pedestrian, bicycle interaction
6. A variety of traffic signs and pavement markings
7. A straight road segment on which to practice speed control
8. Curves and hills at low and moderate speeds
9. Uncontrolled intersections

REFERENCE **CONTENT**

B. Residential Site Selection

Planning a residential route involves the difficulty of providing the trainee a variety of experiences without entering traffic situations that are beyond the trainee's ability. Residential developments generally have very consistent characteristics; that is, one street often presents situations that are almost identical to those of any other street.

The residential route lesson should include but not be limited to the following characteristics:

1. An area that is relatively free of children
2. Signal-controlled intersections
3. Moderate cross traffic at a number of intersections
4. Obstructions to visibility
5. Stop on a hill
6. An intersection with turn lanes
7. Areas or intersections with sharp turns

C. Urban Site Selection

Unlike the residential environment, the urban environment presents constant and dramatic changes. This lesson should progress from a residential area at the start, to a transition area, and then to an urban expressway. The trainee may not be able to complete the entire progression in one lesson, much less attain complete competency.

The urban lesson should include but not be limited to the following characteristics:

1. A transition area between residential and urban areas
2. Lane changing
3. Enter, merge, and exit areas on freeway
4. Passing on freeway

REFERENCE	CONTENT

5. Complex urban intersections
6. Bridge travel
7. Traffic circles, if available
8. Lane selection areas

INTRODUCTION TO DEFENSIVE DRIVING

PURPOSE:

To acquaint the trainee with the operation of the vehicle covering specific defensive driving situations as well as concepts from the previous lessons (Review: mirror usage, backing, turning, and shifting techniques)

OBJECTIVES:

1. Introduce the trainee to driving a vehicle in highway traffic situations and interacting with other roadway users.
2. Allow the trainee to practice basic defensive driving skills in an environment where the intensity of traffic situations is low and where speed can be safely held to a minimum.
3. Transfer the basic driving skills from previous skills levels to the rural driving environment.
4. Introduce and practice the technique of commentary driving. Commentary driving is a technique in which the trainee verbalizes all important driving actions and thoughts.
5. Develop perceptual skills and increase the trainee's ability to assess hazards and risks.
6. Apply the three major visual/perceptual concepts while driving: visual lead, visual fix, and scanning.

NOTE:

Give directions to the trainee well in advance of a turn or maneuver in order to allow adequate preparation time.

REFERENCE | **CONTENT**

Avoid having the lesson become only a series of directions to the trainee. Ask questions when time allows and have the trainee comment on various defensive driving techniques.

Review the perception factor concept with the trainee, as it relates to defensive driving.

Employ the technique of commentary driving throughout the lesson. Commentary driving is important to the instructor because the thinking processes of the trainee can be evaluated.

Another useful technique is the three's-a-crowd rule. Trainees should be instructed to avoid positioning their vehicle between two existing hazards while driving. The trainee may have to accelerate or decelerate to prevent the three's-a-crowd positioning.

Publications:
1. Manual of Traffic Control
2. Uniform Sign Chart

CALTRANS
Attn: Cashier
P.O. Box 942874
Sacramento, Ca
94274

916-324-8997

I. SIGNS, SIGNALS, AND MARKINGS

A. Octagon -- Stop. Come to a complete stop. Yield right-of-way to pedestrians. Stop behind marked or unmarked crosswalk or stop line. If there is no stop line or crosswalk, stop at the point nearest the intersecting roadway where the driver has a view of approaching traffic on the intersecting roadway.

B. Inverted triangle -- Yield. This sign warns the driver to slow down and be ready to stop, if needed. The driver should give right-of-way to traffic and pedestrians.

C. Diamond -- Warning. Diamond-shaped signs alert the driver to possible dangers ahead. The driver must adjust driving to avoid these dangers.

D. Vertical rectangle -- Regulatory. This sign contains information about traffic laws and regulations.

E. Horizontal rectangle -- This sign provides directional information.

F. Round -- Railroad. This sign warns of a railroad crossing. Slow down and be prepared to stop.

G. Pennant -- No passing. This sign is located on left side of the road.

REFERENCE	CONTENT

H. Pentagon -- School. The driver must slow down and watch for children.

I. Triangle -- Slow-moving vehicle. The driver of a vehicle carrying this sign must not travel faster than 25 miles per hour.

J. Shields -- Guide. This sign identifies a highway by number and symbol as part of a national, state, or local system.

K. Colors -- The designated colors and their meanings are as follows:

1. Red -- Stop, yield, or a prohibition
2. Yellow -- Warning
3. Orange -- Construction and maintenance warning
4. Green -- Indicated movements permitted and direction guidance
5. White -- Regulation
6. Black -- Regulation
7. Blue -- Motorist services guidance
8. Brown -- Public recreation and scenic guidance

L. Traffic control signals -- The traffic light colors are:

1. Red -- Stop at stop line or behind crosswalk.
2. Yellow -- Warning. Light is about to change from green to red. Do not enter intersection.
3. Green -- Go, but first check to see that intersection is clear. Yield to vehicles and pedestrians in intersection.

M. Arrow

1. Steady green -- Turn in the direction shown by arrow. Yield to pedestrians and other traffic in intersection.

N. Flashing signals

1. Red -- Come to full stop. Proceed when road is clear.
2. Yellow -- Caution. Slow down, look carefully, and proceed with caution.

O. Lane signals

1. Green -- A steady green arrow pointed downward indicates the driver is permitted to drive in that lane.
2. Yellow -- A steady yellow X indicates the driver should clear that lane because the signal is to change to red.
3. Red -- A steady red X indicates the driver should not drive in that lane.

P. Pavement markings

Yellow lines separate traffic lanes moving in opposite directions.

1. Broken yellow lines indicate passing is permitted when broken line is on driver's side of road.
2. Solid yellow lines on driver's side of road indicate do not pass.
3. Double solid yellow lines on two-lane roads indicate center of road.
4. Center lane, left turn only: Marked on both sides by solid yellow and broken yellow lines. Use only when turning left. Do not use for passing.

Q. White lines

1. Broken white lines separate traffic lanes moving in same direction.
2. Solid white lines are used to channel traffic and prevent lane changes near intersections.
3. Crosswalk lines indicate where pedestrians are to cross. Do not block crosswalks. Yield to pedestrians.
4. Stop lines indicate where a vehicle must stop at intersections.

R. Symbols

1. White arrows: Lanes marked with white arrows indicate the direction in which the driver must proceed.

REFERENCE	CONTENT

II. Identify, Predict, Decide, and Execute (IPDE)

You rely very heavily on vision to guide your vehicle along the roadway. Safe and efficient driving, however, requires more than just seeing. It is being able to interpret what you see and taking the appropriate action once the traffic situation has been correctly interpreted.

The instructor's role is to instruct the trainee in developing a systematic method of seeing, interpreting, and responding to the ever-changing traffic scene. IPDE can help meet that objective.

A. The I stands for identify. You must be able to identify the relevant cues, which involves more than just seeing. It includes interpreting or giving meaning to what you see. To identify and interpret relevant cues, you must know how to look, where to look, and what to look for.

   To identify hazards, you must constantly search the traffic scene carefully. Quick glances should be taken all around (to the front, to the sides, and in the mirrors) both near and far. Since the traffic environment changes constantly, these glances must be taken continuously.

B. The P stands for predict. You must be able to predict the significance of the relevant cues. Once you have identified a hazard in the driving environment, you must predict how the hazard might affect your planned path of travel.

   To avoid the hazard, "Should I speed up, slow down, turn to the right, or turn to the left?" This is the type of question you must ask yourself. During this stage of the process, you are interpreting the information you have identified and are judging where conflicts may occur.

REFERENCE	CONTENT

C. The D stands for decide. You must decide what to do, now that you have identified a hazard and have predicted its effect on your path of travel. Nothing is more crucial to safe driving than being able to make a wise decision, in time, under these circumstances.

The options available include:
Deciding to change speed by slowing down or speeding up.
Deciding to change directions or location by moving into some area of the space cushion around your vehicle.
Deciding to communicate your location and plans to the other traffic in which you are in conflict.

D. The E stands for execute. You now execute your decision. To carry out a decision to avoid a conflict, you must take one or more of the following actions:
Accelerate
Brake
Steer
Communicate

III. SAFETY CIRCLE

The safety circle is an early warning system consisting of three distinct zones. The outer zone is known as the Zone of Recognition, the middle zone is known as the Zone of Action, and the inner zone is called the Accident Zone.

Reinforce the need for using the safety circle. Drivers who maximize their personal early warning system give themselves the most time to avoid involvement in any conflict. Based on the messages transmitted to the brain from the driver's eyes, the motor reflex actions cause the driver to slow, turn, stop, or communicate with the other driver. The trainee must continuously monitor and be aware of the safety circle that surrounds the vehicle. Have the trainee use commentary driving when learning to use the safety circle. It will be easier to evaluate the trainee when developing these correct habits.

IV. DEVELOPING VISUAL TECHNIQUES

A driver looks with the eyes but sees with the mind (perception factor). Unless normal seeing habits in traffic are good, errors in seeing cannot be avoided when hurrying, worrying, irritated, bored, tired, not feeling well, or lost in thought.

Failure to observe properly is a major cause of accidents. The following procedures will assist in developing seeing techniques.

A. Aim high in steering.

Generally speaking, most drivers tend to leave excessive space between the vehicle and the right edge of the roadway. The tendency to drive in the left lane, or in the left portion of any lane, is generally the result of a driver's habit of looking to the left of the lane for steering purposes. Being positioned to the left of center in the vehicle causes the driver to position the eyes to the left of center. Also, a tendency exists in many drivers to restrict the visual search to the roadway immediately in front of the vehicle being driven. Instruct trainees in the following procedures:

1. Practice lengthening the visual search area and execute an occasional brief glance well ahead of the usual search area. Such procedures will assist the driver in the identification process in steering in a straight line or in turns, and in maintaining proper lane position.
2. At night the driver must visually search the area illuminated by the headlights. If the driver cannot see beyond the headlights, an eye examination is needed.

When visibility is poor and the driver must look nearer the front of the vehicle for proper vision, the high-aim steering habit will automatically reduce speed.

B. Keep the eyes moving.

Important events take place in various parts of the driving scene. The eyes should be moved continually to look near, far ahead, to both sides, and in the rearview mirror.

Keeping the eyes moving will prevent staring. Staring results in concentration in only one area and is a dangerous habit. An entire traffic picture can change instantly. Movement of the eyes increases side vision and provides changes that give a sharp image. Eye movement also helps in maintaining a high degree of alertness.

More abundant and more current traffic facts are available through continued eye movement. By keeping the eyes moving, the driver's brain is constantly receiving reports on surrounding traffic conditions.

The eye-moving technique is not only a side-to-side movement but also a close-up and faraway movement. The latter type of movement increases the driver's accuracy of depth perception.

C. Get the big picture.

The big picture exists in the brain and is the product of information gathered through aiming high and keeping the eyes moving.

D. Leave an out.

Leaving an out means leaving an escape avenue open. This is done by being alert to changing conditions in traffic and visualizing what to do if one of the other drivers makes a

REFERENCE | **CONTENT**

mistake. The expert driver leaves an out by allowing adequate following distance and a swerve path to each side. Driving with a space cushion around the vehicle is one aspect of defensive driving.

E. Practice the three-is-a-crowd rule.

It may also become necessary to simplify some situations when the driver encounters several hazards at the same time. For example, while driving on a narrow two-lane road, you might identify a pedestrian walking on your side of the road and a truck approaching in the oncoming lane. By adjusting the speed of your vehicle, you can avoid meeting the oncoming truck and passing the pedestrian at the same time. The situation has been simplified by separating the two hazards. Using commentary driving, have the trainee note several existing hazards and the defensive action that the driver must take to avoid a conflict.

F. Make sure others see the bus.

Occasionally, pedestrians and drivers who use incorrect visual habits will need to have their attention drawn to the bus. A tap on the horn to warn the unsuspecting person is preferred to a sudden stop. Sudden stops contribute to rear-end collisions and can cause injuries to passengers inside the bus.

When adverse visual conditions prevail, such as dusk or bad weather, the driver should use the low-beam headlights to assist other drivers and pedestrians in identifying the bus.

Flashing of brake lights, by pumping the brake pedal, when slowing down or stopped, will assist drivers to the rear in noting speed differentials.

The position of the bus on the roadway can affect the ability of the other driver to see the bus. Driving in another vehicle's blind spot for any extended length of time is an example of poor vehicle positioning and should be avoided.

V. MANAGING TIME AND SPACE

A. Visual Lead Time

An adequate visual lead is necessary to choose a realistic and immediate, planned path of travel. Such a visual lead allows you to make speed or position adjustments well in advance of possible problems. It also allows you to identify an alternative path if an emergency develops.

Your visual lead time should be at least 12 seconds in city driving and may increase to 20 or 30 seconds for higher speed driving. A lead time of 12 seconds may seem long, but consider that at 30 miles per hour, a 12-second lead is 528 feet or approximately one block. At freeway speeds, a 12-second lead would only be two city blocks ahead of your vehicle.

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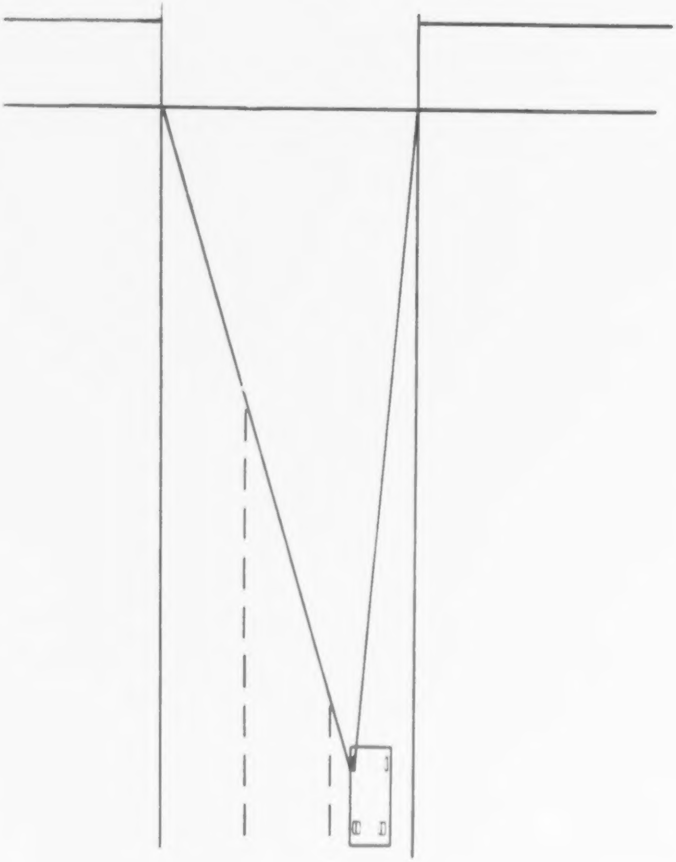
	 12-Second Visual Lead Time

B. Following Distance

Because of the difficulty in judging distance, the following technique was devised, based on counting. This technique allows you to determine safe following distance by permitting a 1-second interval for each 10 feet of length of the vehicle at any speed.

Use 20 feet for all types of passenger cars. For larger vehicles round out the length to the nearest foot. For instance, if your bus is 38 feet long, round it out to 40 feet. If your vehicle is 20 feet long, allow 2 seconds of time between your car and the one in front. If your vehicle is 30 feet long, allow 3 seconds, 40 feet long 4 seconds, and so on. Next, you need a checkpoint over which you will time the passage of your vehicle. You can use a road sign, tar strip in the road, mile marker, lamppost, or any fixed object. As the rear of the car ahead passes the checkpoint you selected, start counting one thousand and one, one thousand and two, one thousand and three. Depending on the vehicle length that is being used for the time interval, you should not pass the checkpoint with the front of your vehicle before you have completed your count.

You are driving a bus. This falls in the 40-foot category, so you use a 4-second interval for your following distance, 1 second for each 10 feet. As the rear of the car ahead of you passes by your checkpoint, start counting one thousand and one, one thousand and two, one thousand and three, one thousand and four. You should complete the 4-second count before you reach the checkpoint.

REFERENCE	CONTENT

If you do not complete the 4-second count, you are following too closely to make a safe stop in an emergency. The time interval of 1-second for each 10 feet of vehicle length is for normal driving conditions.

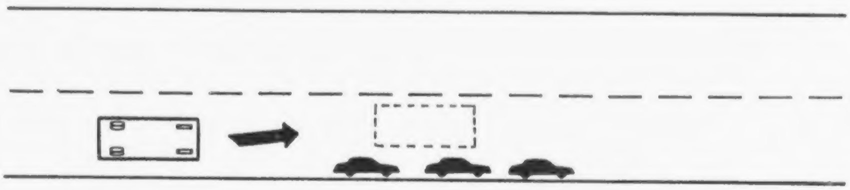
If conditions deviate from normal, allow more space. Road, weather, and light conditions have a lot to do with a safe following distance. As conditions get worse, allowing more stopping distance is good defensive driving. With the time interval technique, just increase your count. For instance, to double your distance, simply count to one thousand and eight instead of one thousand and four. If someone is tailgating you, you can increase your own safety by adding a second or two to your count. That protects you from having to make a sudden stop and getting rammed from the rear. You can make a smoother, longer, more gradual stop with the added time, and that forces the tailgater to do the same.

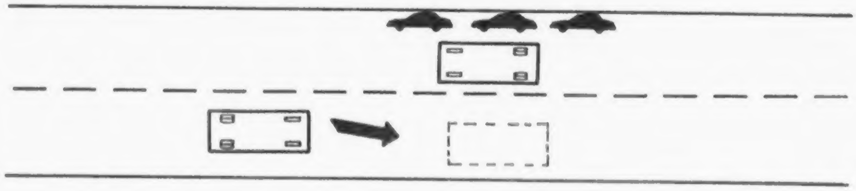
C. Positioning

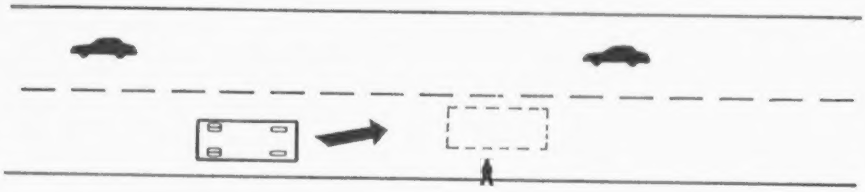
The term "space cushion" refers to the clear area or maneuvering room we should maintain around our vehicle. To maintain a space cushion is to have an escape route in which to take evasive action. When we cannot maintain our space cushion in one direction, we should be aware of it and leave ourselves an out in another direction.

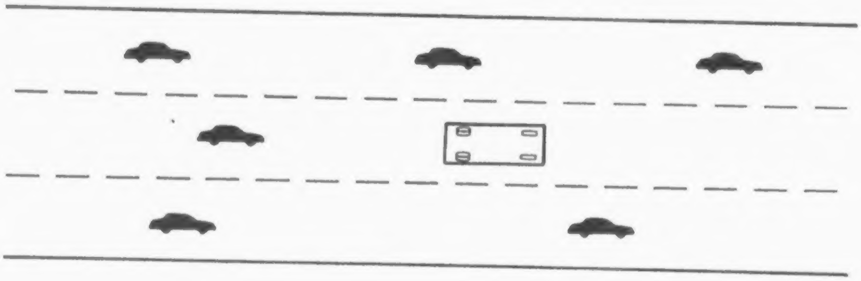
1. Review
    a. Blind areas, mirror adjustment
    b. Mirror usage, to monitor traffic on either side
2. Lateral positioning

    Position your vehicle so that you have the greatest amount of space possible between you and any potential hazards.





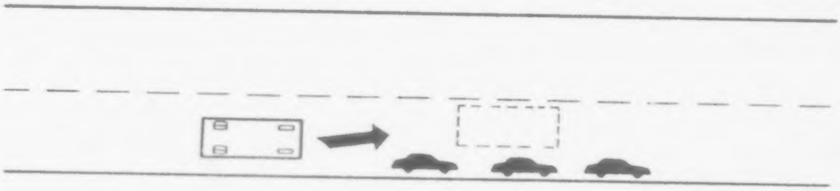




3. Compromise

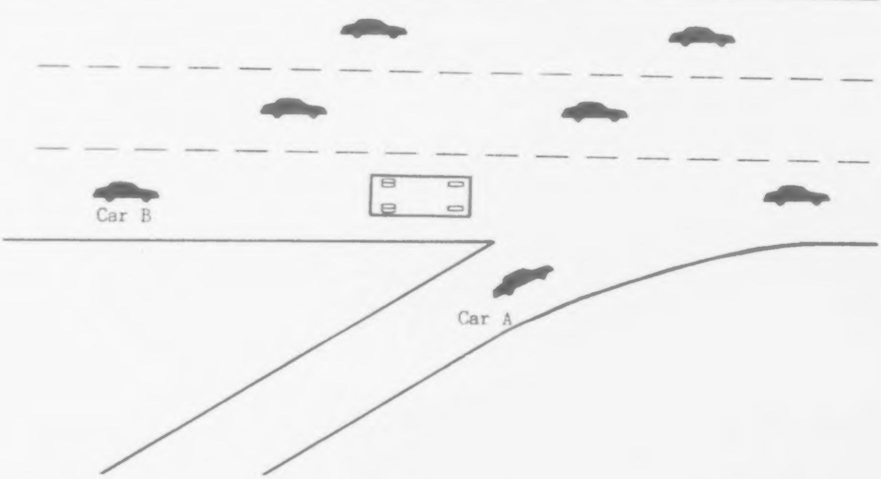
At times, separating hazards is not that easy. For example, when adjusting to a sudden slowdown ahead, you also need to allow space to your sides and rear. In this kind of situation, you may have several different factors influencing you at once. Resolving these factors into a single decision is called compromise.

In this situation the driver of the car compromises by slowing and moving closer to the oncoming cars.



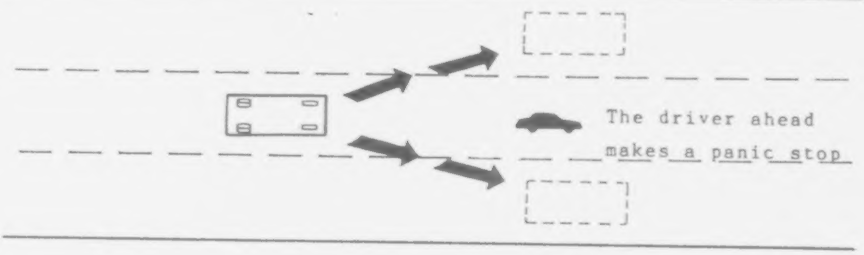
In a compromise situation you might have to brake enough to avoid a collision with car A but not so much that you would create a collision with car B.

IDEAL SITUATION



4. Alternative paths of travel

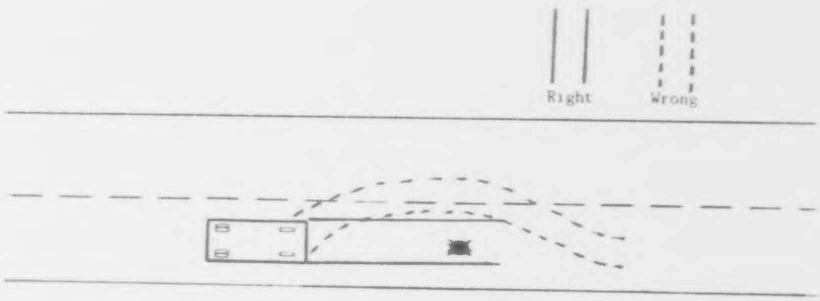
Escape routes are nothing more than alternative paths of travel. As you drive, you identify an immediate path of travel. This is where you want your vehicle to be 4 seconds from now, based on existing road and traffic conditions. You also need to identify an alternative path of travel; in other words, where would you place your vehicle if your immediate path of travel were suddenly blocked? This 4-second gap is determined by counting. Simply pick a point ahead and count one thousand one, one thousand two, . . . , one thousand four.



Where would you move if your path was suddenly blocked?
Select alternate path of travel
4-second path of travel

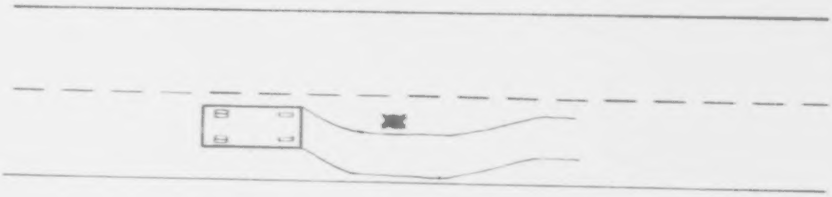
D. Small Objects or Potholes in the Roadway

Small, low objects (glass bottles and so forth) and potholes should be straddled. Do not swerve into the opposing lane of traffic.



E. Large Objects in the Roadway

Large objects should not be straddled. When space is available, it is better to drive to the right of the object.



REFERENCE	CONTENT

VI. MANAGING SPEED

There is no one safe speed. Speed has to be adjusted to conditions such as road surface, design of the road, visibility, and traffic.

A. Basic Speed Law

1. Drive at a careful and prudent speed that takes into account all driving conditions.
2. Drive at no greater speed than will permit stopping within the clear distance ahead.

B. Slippery Surfaces

1. When the road is slippery, reduce speed in order to be able to stop in the same distance as on a dry surface.
2. When the surface is wet, reduce speed by one-fourth.
3. When driving on packed snow, reduce speed by half.
4. When the surface is icy, reduce speed by two-thirds.

C. Road Design

All drivers must adjust their speed to the conditions of the road. If you take a curve too fast, two things can happen. The wheels can lose their traction and continue straight ahead, producing a skid; or the wheels may maintain their traction, but the vehicle will not turn, producing a rollover. Braking in a curve is dangerous because it could lock the wheels and make matters worse.

1. Adjust to a safe speed before you enter a curve.
2. Ease off the accelerator or downshift as necessary. This will allow you to accelerate slightly in the curve and help maintain stability.

D. How Far You Can See

The rule about visibility and speed is that you should always be able to stop within the distance you can see ahead.

E. Techniques to Enable a Driver to Adjust Speed to Existing Conditions
   1. Periodically observe the speedometer and check speed.
   2. Adjust speed to that of other traffic by:
      a. Accelerating
      b. Decelerating
      c. Braking
      d. Downshifting

VII. ENTERING TRAFFIC STREAM

When entering the traffic stream, the trainee should do the following:

A. Observe traffic to front and rear.
B. Look for gap in rear approaching traffic; use the mirrors.
C. Yield right-of-way to all vehicles and pedestrians.
D. Actuate turn signal.
E. Accelerate smoothly into gap in traffic lane.
F. Straighten steering wheel.
G. Check to see that directional signal has been canceled.
H. Accelerate quickly to speed of traffic.

VIII. LANE CHANGES

When making a lane change, the trainee should:

A. Observe traffic to front and rear.
B. Check mirrors (five-count) to make sure no one is alongside the vehicle.
C. As soon as the driver decides to change lanes, make sure there is enough room.
D. After the driver has signaled, check to make sure no one has moved into the blind spot.
E. Right after starting the lane change, double check that the path is clear.

IX. CURVES

- A. When positioning the bus for a curve:
  - 1. For tight right curves keep the left front wheel close to the centerline. This allows the rear wheels to remain on the road surface.
  - 2. For tight left curves keep the right front wheel close to the outside edge of the road. This allows the rear wheels to remain on the proper side of the road.
- B. Approach a curve at a speed that will enable the curve to be negotiated safely.
  - 1. Observe the roadway ahead for signs indicating maximum safe entering speed.
  - 2. Reduce speed, if necessary, to attain posted limit.
- C. When entering and driving through a curve:
  - 1. Look well ahead to anticipate the need for steering correction by looking through the curve as far as possible. Hazards thus can be detected sooner and appropriate action taken.
  - 2. Maintain a position within the lane (do not change or "cut across" lanes).
  - 3. Maintain speed throughout a curve by keeping light pressure on the accelerator.
  - 4. Reduce speed by releasing the accelerator and applying brakes lightly:
    - a. Whenever the initial speed results in too great a rate of curvature
    - b. Whenever visibility is restricted by darkness, fog, vegetation, or other obstruction
- D. Accelerate slightly during curve if entry speed proves to be slower than necessary.
- E. When leaving curve, resume original or other safe speed.

REFERENCE	CONTENT

X. HILLS

A. Select far right lane or auxiliary climbing lane (if available).

B. Maintain constant speed on upgrades by:
  1. Applying accelerator pressure
  2. Shifting to lower gear

C. When approaching the crest on a narrow roadway, keep far to the right.

D. Slow down slightly when approaching the crest to compensate for limited sight distance.

E. Look for signs indicating length and/or gradient of downgrade.

F. Shift into lower gear before beginning a long and/or steep downgrade.

G. Maintain a constant speed on downgrades by:
  1. Reducing accelerator pressure
  2. Applying the brakes partially throughout descent, if necessary

H. When approaching the bottom of the downgrade, resume normal driving speed.

I. When making turns over the crest of a hill or around a curve, activate the turn signal while the bus is still visible to motorists following the bus.

XI. LEAVING TRAFFIC STREAM

A. Scan roadside for a suitable place to stop.

B. Observe shoulder for obstructions (trees, poles, signposts).

C. Look for a spot with no obstructions where the vehicle can be seen by traffic.

D. Check mirrors.

E. Signal intention to leave traffic stream.

F. Reduce speed.

G. Guide bus gradually off roadway.

H. Brake gently to a complete stop.

REFERENCE | **CONTENT**

XII. BEING PASSED

A. Maintain a position in the center of the lane or move slightly to the right, if possible.

B. Maintain or reduce speed; do not accelerate.

C. Watch for signals that the passing vehicle plans to cut back in front of bus. These signals are:

1. Driver looks back over shoulder.
2. Turn signals are flashing.
3. Front wheels begin to angle back to right.

D. Prepare to slow down to provide larger space for passing vehicle to reenter lane or to obtain additional following distance if vehicle cuts in after passing.

XIII. STARTING ON GRADES - MANUAL TRANSMISSION

A. Apply service brake.

B. Set parking brake (if necessary).

C. Depress clutch (five-count).

D. Place gearshift lever in starting gear.

E. Apply appropriate throttle.

F. Release clutch to friction point, simultaneously releasing parking brake so that bus does not roll backward.

G. Release clutch completely and press throttle until bus gains adequate speed to shift into next higher gear.

XIV. STARTING ON GRADES - AUTOMATIC TRANSMISSION

A. Apply service brake.

B. Set parking brake.

C. Place gearshift lever in lowest gear.

D. Simultaneously release parking brake and press throttle so that bus does not roll backward.

E. When bus gains the appropriate speed, shift manually into next higher gear.

XV. STARTING ON DOWNGRADES - MANUAL TRANSMISSION

A. Apply service brake.
B. Set parking brake.
C. Depress clutch (five-count).
D. Place gearshift lever in starting gear or numerically higher gear, depending on severity of downgrade.
E. Release parking brake.
F. Gradually release service brake.
G. Release clutch using dead throttle.

XVI. STARTING ON DOWNGRADES - AUTOMATIC TRANSMISSION

A. Apply service brake.
B. Set parking brake.
C. Place gearshift lever in appropriate gear, depending on severity of downgrade.
D. Release parking brake.
E. Gradually release service brake.
F. Accelerate, as necessary.

RESIDENTIAL DEFENSIVE DRIVING TECHNIQUES

PURPOSE:

To acquaint the trainee with vehicle operation on streets with limited space, increased vehicular and pedestrian traffic, and frequent conflicts. Review following distance, lateral clearances, turns, entering traffic flow.

OBJECTIVES:

1. Introduce the trainee to increased vehicle and pedestrian interaction in a residential area.
2. Develop the residential driving skills and defensive driving techniques necessary to operate a vehicle safely.
3. Enhance the trainee's ability to assess hazards and risks in a residential environment.

REFERENCE | **CONTENT**

4. Assist the trainee in developing the skills necessary to operate a large vehicle in a limited-space environment.
5. Develop perceptual skills that are unique to residential driving.

NOTE:

Drive the residential route prepared for this lesson. Begin by having the trainee drive at a slow speed and then gradually increase the speed. Driving at a slow speed early in the lesson gives the trainee a period to become reacquainted with operating a large vehicle. Emphasize the increased traffic interaction that can be expected and ask the trainee how driving should be adjusted to account for the increase.

Constantly evaluate the trainee's visual lead and reaction to possible problems. Other important skills to emphasize are lane positioning for turns and frequent starting and stopping.

Give the trainee a series of directions to follow at one time rather than constantly interrupting the driving to issue new directions. When directions are given in a series, the instructor can evaluate the trainee's preparation for turns or maneuvers in a more realistic manner. An example of giving directions in a series might be, "Turn left onto Bradford Road, go two blocks to Greenwood and turn right, and then proceed to Blossom Street and turn right again."

At this stage in the training program, the instructor can increase the use of commentary driving with the trainee. The commentary should become more fluent and provide a better basis for evaluation of the trainee. The use of skill exercises should also be increased in order to continually challenge the trainee.

With the increased amount of traffic interaction in a residential area, the instructor must also become more active visually and perceptually in order to identify possible conflicts. An increased awareness of the changes in the traffic environment should be accomplished through more constant and intense traffic checks. The traffic situation can change much faster in a residential area than in a rural area.

Private driveways and other areas should not be used for bus maneuvers without the permission of the owner. These areas should not be used for instructional purposes if they are occupied by another party.

Providing an explanation of the problems of large vehicles in residential areas is often necessary with new drivers. Do not assume that the trainee will gain this information independently. Ask questions about the differences that the trainee experiences at the close of the lesson.

REFERENCE	CONTENT

Make every attempt to include more trainee use of the IPDE concept during residential driving in preparation for urban traffic. Instilling this concept at the residential level will help to reduce the problems a trainee encounters as a result of the increased traffic in the urban environment. Combine the concepts of visual lead, scanning, and IPDE to help develop an improved awareness of the driving environment. At least half of the commentary in this lesson should be initiated by the trainee in response to situations in the traffic scene. With increased competence as a driver, the trainee should become more active as an evaluator in the situations that are being encountered and in defining the alternatives. The instructor now assumes the role of a moderator in the lesson, one who provides help only when necessary. Begin the process of moving the trainee out to a more independent position that is similar to the one he or she will occupy when functioning as a regular driver. The instructor now assumes less control, and the trainee accepts more.

Demand precision in the maneuvers and skills that the trainee performs. Allowing sloppy performance reflects poorly on both the instructor and the trainee. Turns, lane changes, intersection travel, parking, and all other skills are to be performed precisely as intended, and the trainee should be made to feel a sense of pride in a high level of quality. Use positive reinforcement when a skill or maneuver is executed especially well and assist the trainee to correct errors when performance is not up to par.

Well-presented positive reinforcement involves two elements:

1. Identify for the trainee that the skill or maneuver was performed well.
2. Explain to the trainee why the skill or exercise was especially well done.

Feedback to the trainee that is intended to define performance that is not acceptable to the instructor should consist of three distinct elements:

1. Identify for the trainee that the skill or maneuver was not performed well.
2. Describe the elements that were not performed properly and why they were not acceptable.
3. Describe for the trainee, or have the trainee describe, the action that is necessary to correct the error(s).

The third element in the process of giving feedback to correct a problem is essential if the trainee is expected to improve the performance. Quite often the trainee is not aware of why the performance is unacceptable or how to improve. Practice without proper feedback rarely yields any significant improvement.

I. PARKED VEHICLES

   A. Hazards when approaching parked vehicles:

      1. Spaces between parked vehicles through which pedestrians and animals may dart into street
      2. Parked vehicle which may suddenly move into the path of another vehicle
      3. Occupants of parked vehicle who may suddenly open doors

   B. Clues that a stationary vehicle might move:

      1. Exhaust fumes coming from vehicle
      2. Back-up lights on
      3. Brake lights on
      4. Front wheels turned toward traffic lane
      5. Driver looking back over shoulder
      6. Turn signals flashing

   C. Procedures when relating to parked vehicles:

      1. Maintain reasonable speed.
      2. Maintain lane position, leaving reasonable clearance between bus and parked vehicles.
      3. Be ready to stop.
      4. Change lanes, if necessary.

II. ONCOMING VEHICLES

When approaching oncoming vehicles the trainee should:

   A. Maintain position to right of centerline.
   B. Observe roadway for slow-moving or stopped vehicles or obstructions that might force oncoming vehicles across centerline.
   C. Be prepared to stop.
   D. Look for a place to steer to the right.

III. YIELDING (RIGHT-OF-WAY)

   A. At intersection the trainee should:

      1. Yield to any vehicle that is already in the intersection.

REFERENCE	CONTENT

2. When reaching an intersection at the same time as another vehicle, yield to vehicle on right.
3. When approaching a yield sign, slow down to a reasonable speed and yield right-of-way to any vehicle in the intersection and to approaching traffic.
4. When approaching a stop intersection, stop and yield right-of-way to any vehicle in the intersection and to approaching traffic.
5. When merging onto a main highway, with or without signs, yield to any vehicle close enough to be an immediate danger.
6. When making a left turn, yield right-of-way to oncoming traffic.

B. Stop and then yield the right-of-way:

1. When entering a highway from an alley, private road, or driveway
2. When turning on red light
3. Yield to emergency vehicles that are sounding a siren and flashing warning lights by pulling as far as possible to the right and stopping.

C. Yield right-of-way to pedestrians:

1. At stop sign -- After coming to a complete stop, give right-of-way to pedestrians crossing street.
2. At traffic signals -- After a light turns green, yield to pedestrians still crossing street. Also yield to pedestrians walking with a green light or a "Walk" signal.
3. At steady green arrow -- Yield to conflicting cars and pedestrians.
4. At crosswalks -- When pedestrians are crossing street at a crosswalk, slow down or stop before reaching the crosswalk.

5. When turning -- Yield to pedestrians when turning at an intersection or when entering an alley or driveway.
6. When entering a street -- Yield to pedestrians in your path when driving onto a street or highway from a driveway or alley.
7. Yield at all times when a collision with pedestrians is possible.

D. Yield when directed to do so by funeral escorts.

IV. CYCLISTS AND ANIMALS

A. Cyclists

1. Leave plenty of room for cyclists.
2. When approaching cyclists, give a short beep on the horn at least 200 feet prior to passing to warn them that you are near.
3. Watch for cyclists at night as they may not have proper lighting.
4. Provide for side clearance when passing.

B. Animals

1. Watch for animals on or along roadway.
2. Slow down when entering animal crossing zones or when noting animals on or along roadway.
3. If animal enters roadway:
    a. Check mirrors.
    b. Prepare to stop or maneuver, if traffic permits.
    c. Hit animal if stopping or maneuvering would jeopardize own safety or that of passengers, other motorists, or pedestrians.

V. APPROACHING INTERSECTIONS

When approaching intersections the trainee should:

A. Slow down in sufficient time to avoid stopping in the intersection or on a crosswalk.

B. Observe signs providing lane information and enter the correct lane as early as possible but no later than 100 feet before reaching intersection.

C. When intending to turn, enter far right lane for a right turn or appropriate, authorized lane for a left turn, unless otherwise directed.

D. Check mirrors.

E. Signal intentions to turn as soon as possible without causing confusion but no later than 100 feet before reaching intersection.

F. If unable to enter correct lane for a turn, proceed to next intersection.

G. If an officer and control devices are in conflict, follow the officer's directions.

H. Prepare to stop if the light is red, flashing red, yellow, or if facing pedestrian crossing signals indicate a stale light. Proceed with caution but be ready to stop if the light is flashing yellow.

I. Slow down and prepare to stop if traffic light is changing from green to yellow.

J. Proceed through intersection when light changes from green to yellow, if stopping would cause a conflict with following vehicles.

K. Slow down in preparation for stopping at an intersection controlled by a stop sign.

L. Slow down sufficiently to stop, if necessary, at an intersection controlled by a yield sign and proceed cautiously only when the intersection is clear.

M. Observe oncoming traffic for an indication of a left turn and prepare to stop quickly if an oncoming vehicle suddenly makes a left turn.

N. Reduce speed to enable a vehicle turning left in the intersection to complete the turn, and be ready to stop if the vehicle does not complete the turn.

O. Observe path ahead of a left-turning or right-turning vehicle to anticipate a forced stop by the turning vehicle.

P. Slow down or stop to permit a vehicle approaching from the right to clear the intersection.

Q. Observe path of a vehicle approaching from the right to anticipate the vehicle entering intersection.

R. When a vehicle approaches from the left and is on a major road, observe that vehicle for an indication of slowing down and prepare to stop if that vehicle does not yield right-of-way.

VI. APPROACHING THROUGH INTERSECTION

When approaching a through intersection, the trainee should:

A. Observe the path of traffic ahead to anticipate any stops and prepare to stop should the lead vehicle stop suddenly.

B. Stop if oncoming traffic suddenly makes a left turn across path of a vehicle.

C. Observe traffic from the left. If a vehicle signals for a right turn, do not pull out until the vehicle begins to turn.

D. Observe traffic from the right before entering an intersection and enter it only when safe passage is assured.

E. Slow down and proceed cautiously if pedestrians are near the corner, yielding right-of-way or stopping if a pedestrian enters street.

F. Observe oncoming traffic preparing to turn left and prepare to stop should a left turn be initiated.

G. Enter the intersection, after checking for cross traffic, if light is green or flashing yellow.

H. Come to a complete stop before proceeding through the intersection if there is a flashing red light.

I. If a green arrow governs the lane, proceed only in direction indicated by arrow.

J. When an intersection is controlled by a stop sign, come to a complete stop and proceed only when no interference with cross traffic will occur.

K. When encountering a "yield" sign, proceed only when no interference with cross traffic will occur.

VII. ENTERING OFF STREETS

When entering off streets, the trainee should:

A. Left turn
   1. Check mirrors for traffic flow.
   2. Signal for left turn.
   3. Position bus in lane just to right of centerline or in left-turn-only lane.
   4. Keep wheels aimed straight ahead.
   5. Yield to oncoming traffic.
   6. Watch for other traffic entering or exiting off-street areas.
   7. Check left mirrors for rear dual and passing vehicles.
   8. Complete turn.
   9. Maintain safe entrance speed when turning into an off-street area entrance.
   10. Stop only after vehicle is completely through entrance way and well off main roadway.

B. Right turn
   1. Check mirrors for traffic flow.
   2. Signal for right turn.
   3. If intending to turn into an off-street area immediately beyond an intersection, activate turn signal when halfway through intersection so that vehicles do not interpret signal as an indication to turn at intersection.
   4. Position vehicle in appropriate lane.

REFERENCE	CONTENT

5. Look for signs or entryway markings indicating the direction of travel.
6. Adjust position of bus to provide proper clearance for entering an off-street area.
7. Check right mirror for passing vehicles and obstructions.
8. Complete turn.
9. Maintain safe entrance speed when turning into an off-street area entrance.
10. Stop only after vehicle is completely through entrance way and well off main roadway.

VIII. INTERSECTIONS - RIGHT TURNS

When making a right turn, the trainee should:

A. Check mirrors.

B. Signal intention to turn well in advance of turn.

C. Make the approach for a right turn and the right turn as close as practicable to the edge of the right-turn lane.

D. Observe traffic controls before attempting to make a right turn.

E. Check cross traffic to left and, if there is a line of traffic, wait for a gap of sufficient size before proceeding.

F. Check cross traffic to right to make sure there are no vehicles blocking passage in intended lane.

G. Check right mirror.

H. Enter travel lane nearest the curb, turning sharply enough to avoid blocking or entering left lane, if possible. If necessary, use opposing traffic lane of the street into which you are turning (when not in use) to complete turn.

I. When making turn, use the hand-over-hand technique.

J. Check mirrors for clearance of right rear duals as you turn.

K. After the turn has been completed, check to see that the directional signal has been cancelled.

L. Adjust vehicle speed to conditions.

IX. INTERSECTIONS - LEFT TURNS

When making a left turn, the trainee should:

A. Observe traffic controls before making turn.

B. Check mirrors.

C. Signal intention to turn well in advance of intersection.

D. Reduce speed of vehicle.

E. Check cross traffic and wait until there is a sufficient gap in traffic from left and right before proceeding to turn.

F. Observe traffic and pedestrians for clear way to make turn.

G. Yield to oncoming traffic.

H. When making turn, use hand-over-hand technique.

I. Enter lane to right of centerline.

J. When turning into a one-way street, turn into the left lane unless otherwise marked.

K. Check to be sure that the directional signal has been canceled after completing turn.

L. Adjust vehicle speed to conditions.

URBAN DEFENSIVE DRIVING TECHNIQUES

PURPOSE:

To acquaint the trainee with concepts and situations that are unique to urban areas. Review interaction, intersections, scanning, and IPDE.

OBJECTIVES:

1. Introduce the trainee to a complex and intense traffic environment in the city.
2. Develop the skills necessary to drive a vehicle in an urban area.
3. Introduce the trainee to higher-speed operation of the vehicle on an urban expressway.
4. Enhance the perceptual skills of the trainee in order to accommodate the increased level of traffic inputs.

NOTE:

Ask the trainee to describe the special concerns in preparing to drive in an urban area.

Before taking the trainee on the designated route, drive in a residential area for a short time to allow the trainee to become familiar with the bus. This is especially important if the trainee has not driven a bus for several days. Evaluate the trainee's residential skills closely and move to the urban route only when the trainee is comfortable with the bus. Taking the trainee directly to the urban route does not permit the reorientation that is necessary before new skills and situations are introduced.

Between the residential and urban areas, allow for a gradual transition from light to heavy traffic. This can be accomplished by entering the urban route via secondary and less-congested streets. Practice the urban skills during this transition period to accommodate the trainee's needs and to eliminate indecision.

Traffic density is greatest during the morning and afternoon peak hours which coincide with work travel. Try to avoid these periods when first introducing a new driver to urban traffic. Later in the training period, the trainee should encounter peak hour driving conditions.

When preparing the urban route, the instructor should practice giving the instructions and directions for the lesson much the same as a trainee employs commentary driving. In areas where confusion or uncertainty is anticipated on the part of the trainee, map out the traffic situation and review the driving strategy before the lesson. Remind the trainee of the map exercise as the particular location is approached and observe the preparation of the trainee to determine whether the proper approach is taken.

Both the instructor and the trainee need to increase the number and the integrity of traffic checks throughout this lesson. Since the urban environment changes rapidly, both must be aware of the total traffic situation.

The increased traffic volume encountered will frequently cause the trainee to decrease the visual lead in an attempt to accommodate the greater number of inputs. When the visual lead decreases, the time available to process the information also decreases and the trainee is left trying to process a large number of inputs in a shorter period of time. Use commentary driving to evaluate the visual lead and scanning.

There is also a tendency for the trainee to drop the visual fix when making a turn in heavy traffic. Again, this is an attempt to accommodate the traffic volume and intense inputs. The end result is often a deteriorating performance cycle in which the trainee's attempts to compensate for one problem cause the problem to become even worse.

A remedy for these two situations involves constant attention to visual skills during the lesson by the instructor. When the first symptoms of visual lead and visual fix problems occur (erratic steering and improper or inconsistent lateral clearances), employ commentary driving to assess the situation and to get the trainee to move the visual lead farther ahead.

If precision has been demanded in the performance of skills and maneuvers, the payoff will occur in the urban environment. On the other hand, the urban lesson is the most difficult for the trainee and the instructor and the earlier errors of both will be magnified as the traffic situation becomes more complex.

Clarify several points with the trainee early in the lesson:

1. When in doubt about a direction, maneuver, or skill, ask to have the comment or request repeated.
2. Keep the speed of the bus down through at least the first half of the lesson.
3. Employ all visual skills on a consistent level.

These simple recommendations can go a long way in reducing errors by the trainee and instructor.

Give all directions well in advance to allow the trainee adequate response time. Think through the traffic situation before each maneuver and assess how indecision on the part of the trainee will influence safety and performance. Do not expect a trainee traveling in the far right lane to cross four lanes of traffic within the distance of one block in order to make a left turn.

When there is any doubt as to whether the trainee understands a statement or direction, repeat it another time in a different manner.

Lane changing in urban traffic is probably one of the most dangerous standard maneuvers any vehicle operator can make. Exercise strict control over lane changes by requiring permission to do so until the trainee has demonstrated competence in this maneuver on at least three occasions.

Review intersections, scanning, IPDE, and vehicle interaction with the trainee before the lesson begins and stress the importance of these items in the urban environment:

1. Demonstrate "covering" the brake in danger spots.
2. Demonstrate how to use the auto cushion when the bus is stopped in traffic.

REFERENCE	CONTENT

3. Demonstrate the proper cushion at limit lines.
4. Demonstrate proper following distances (1 second for every 10 feet of length of your vehicle at any speed).
5. Demonstrate how to prevent rollback when starting the bus on an uphill grade.
6. Discuss and demonstrate eye-to-eye contact.
7. Discuss and demonstrate proper caution and courtesy.
8. Discuss and demonstrate when to shift gears. Don't change gears when it is not safe to do so.

The concept of perceptual overload is especially important during this lesson. Every driver has a limit to the number and intensity of the traffic inputs that they can handle. As a general rule, the less experienced the driver, the lower the limit or threshold. Errors appear and performance deteriorates rapidly when the limit has been exceeded. Most new drivers are near their threshold when first encountering urban traffic situations. An overload can be created by a sudden or serious traffic conflict, unnecessary or conflicting commentary by the instructor during complex situations, and momentary inattention to the traffic scene.

When an overload occurs, it is best to move to a less complex area and then gradually work back into the normal traffic flow.

The decrease in the visual lead is a major cause of perceptual overloads because the trainee does not have an adequate amount of time to process all the relevant information. The trainee's frustration increases as the overload continues, and this presents the instructor with two problems to solve.

Overloads are best avoided with a carefully planned progression through the required levels of skill. A sudden and dramatic increase in traffic inputs will certainly reveal any deficiencies on the part of the trainee.

If the instructor feels the trainee is overloaded, the instructor should tell the trainee to reduce speed, try to increase the visual lead, and move to a less complex area.

There are several special evaluation needs in the urban lesson in addition to the standard evaluation process. These are:

1. Consider the trainee's response to traffic situations, especially the approach to complex situations. Evaluate whether or not the preparation and the approach reduce the problems that the trainee could have encountered.
2. Assess all visual skills. Performance is acceptable only when the trainee is comfortable and competent with the use of visual skills.

3. Constantly judge lateral clearances as they are indicators of several potential problems.
4. Be aware of the possibility of perceptual overloads with beginning drivers.

I. BRIDGES AND TUNNELS

When crossing a bridge or entering a tunnel, the trainee should:

- A. Slow down for better control and remain in the right lane to provide clearance with traffic in adjacent lane.
- B. Look for signs regarding:
    - 1. Lane availability and usage
    - 2. Clearance
    - 3. Load limit
    - 4. Speed limit and passing restrictions
    - 5. Use of lights in a tunnel
- C. Observe other traffic and lane side structures.
- D. Remove sunglasses before entering tunnel.
- E. Turn lights on in tunnel, if necessary.
- F. Adjust speed to grade changes and observe speedometer frequently.
- G. Stop only if traffic flow requires or at emergency exits.
- H. Observe posted signs regarding exit information and speed limits.
- I. Turn off lights on leaving tunnel during daylight hours (unless required by law).

II. ENTRANCE RAMPS

When approaching an entrance ramp, the trainee should:

- A. Observe information signs indicating correct lane or ramp usage, speed limits, and warnings.
- B. Observe entrance ramp and main-roadway configuration to aid in judging merging distance and pattern.
- C. Check mirrors carefully.
- D. Look back briefly over left shoulder to check location and speed of traffic on main roadway.

REFERENCE	CONTENT

If possible, look over right shoulder if entering roadway from left.

E. Check location and speed of lead vehicles on entrance ramp acceleration lane.

F. Make initial speed adjustment based on entrance ramp and roadway configuration and traffic conditions.

G. Prepare to enter acceleration lane.

H. Enter acceleration lane.

III. MERGING

When merging into traffic, the trainee should:

A. Check mirrors.

B. Signal intention to merge.

C. Look for gap in merging lane.

D. Adjust speed as necessary to merge safely.

E. Recheck traffic in merging lane with mirrors.

F. Merge with traffic.

G. Adjust speed to traffic.

IV. EXIT RAMPS

When preparing to exit, the trainee should:

A. Look for correct exit.

B. Check mirrors.

C. Move into proper lane.

D. Watch for deceleration lane.

E. Check mirrors.

F. Signal intention to turn.

G. Reduce speed in deceleration lane.

H. Watch for exit ramp speed limit sign.

I. When deceleration lane is part of acceleration lane, watch for entering vehicles.

J. Observe speed limit signs.

K. Drive in center of appropriate lane and stay clear of barriers.

L. Watch for other vehicles changing lanes.

REFERENCE	CONTENT

M. Observe signs on cross roadways for information on alternative destinations.

N. Check speed.

O. When nearing end of exit ramp, slow down and prepare to stop. Watch for traffic that may be stopped or waiting in line at end of ramp.

V. TRAFFIC CIRCLES

When entering traffic circles, the trainee should:

A. Enter in counterclockwise direction (unless otherwise directed).

B. Yield to vehicles already in circle.

C. Remain in outer lane at a consistent speed.

VI. LANE CHANGING

When preparing to change lanes, the trainee should:

A. Check mirrors to see if other vehicles are about to enter the lane you are merging into.

B. Check for vehicles in blind spots with convex mirrors.

C. Signal intention to change lanes.

D. Just before changing lanes, accelerate to new lane traffic speed, if there is sufficient space ahead to do so.

E. Turn steering wheel sufficiently to slowly enter new lane.

F. Position vehicle in center of new lane.

G. Check to see that directional signal is canceled.

H. Adjust speed to that of traffic in new lane.

NOTE:

The following conditions might warrant a lane change and should be discussed with the trainee:

1. Lane blocked by another vehicle
2. Accident
3. Detour
4. Road construction

REFERENCE	CONTENT

5. Slow-moving vehicle
6. Bicyclists and pedestrians
7. Road defects
8. Debris in lane

VII. PASSING

When passing another vehicle, the trainee should:

- A. Use the rearview mirrors.
- B. On a two-lane road, check for oncoming traffic and traffic signals.
- C. Actuate turn signal well in advance of passing.
- D. Move into passing lane while increasing speed of bus to make passing smooth and safe.
- E. Check for clearance and signal before returning to original lane.
- F. Move into original lane.
- G. Cancel turn signal.
- H. Resume safe and authorized speed.

NOTE:

The following items should be discussed with the trainee:

1. Passing on left is permitted:
   - a. When overtaking other traffic moving in same direction where passing is allowed and safe.
   - b. When right half of road is blocked. Yield to oncoming traffic.
   - c. When using a street with two or more lanes for one-way traffic and when there is slower traffic in the right lane.
2. Passing on left is prohibited:
   - a. When approaching crest of a hill on a two-way roadway or a curve in highway where driver's view is obstructed.

b. When view is obstructed on approaching within 100 feet of any bridge, viaduct, or tunnel.

c. When oncoming traffic is close enough to be in danger.

d. When there is a solid yellow line in your lane.

e. When there is a no-passing sign.

3. Passing on right is permitted:
   - a. When the vehicle being overtaken is making a left turn.
   - b. When two or more lanes of traffic are moving in the same direction.
4. Passing on right is prohibited:
   - a. When passing movement causes vehicle to drive off of pavement or main-traveled portion of the roadway.

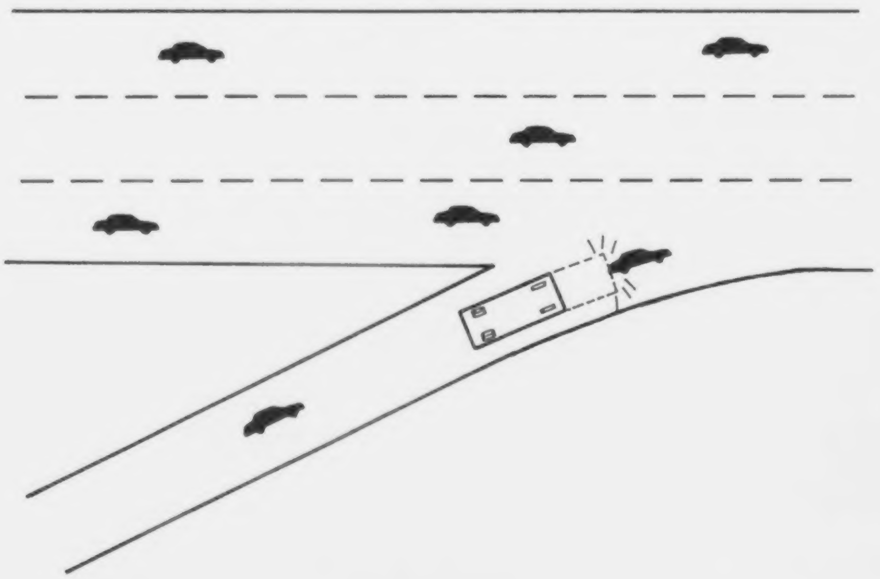
VIII. FREEWAY DRIVING

When driving on a freeway the trainee should:

A. On Ramp

1. Learn the name, route number, and travel directions of the roadway you wish to enter or exit.
2. When entering a freeway, make sure that the road or "ramp" you select is an entrance ramp.
3. The entrance ramp leads into an acceleration lane. This is an extra lane next to the through lanes where you are permitted to reach freeway speeds.
4. The procedure for entering the freeway is:
   - a. Enter on ramp.
   - b. Activate appropriate turn signal.
   - c. Scan mirrors (visual checks).
   - d. Avoid entering the freeway at a sharp angle.
   - e. Adjust to freeway speed in the acceleration lane.
   - f. Move carefully into the freeway lane in the merging area.

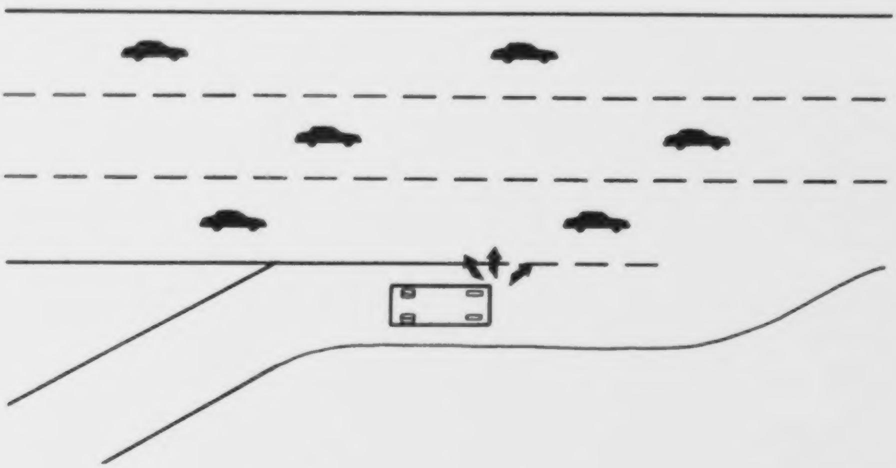
REFERENCE	CONTENT



B. Acceleration Lane

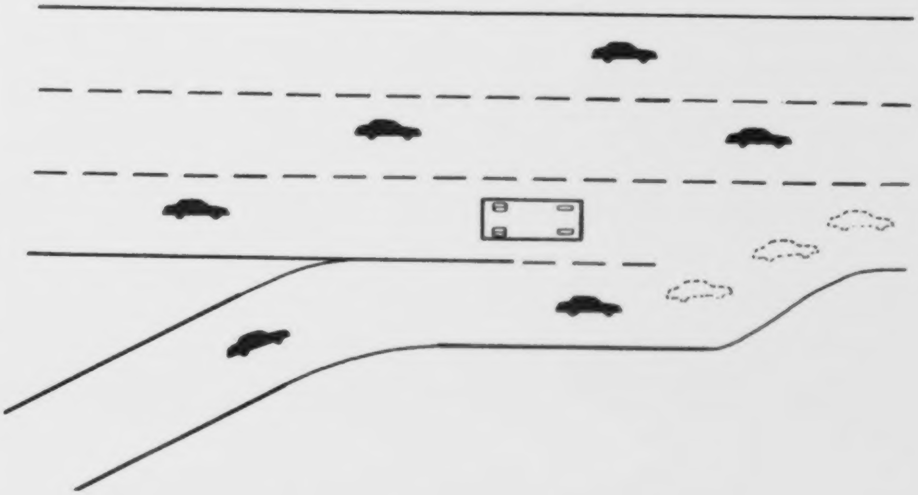
1. Begin checking freeway traffic with quick glances into rearview mirrors and over shoulder to find a gap in the through lane.
2. Select a gap in traffic and begin to adjust speed at the top of the ramp or as soon as you can see traffic in the freeway through lanes.
3. Signal until you have entered the through lane.
4. Adjust speed in the merging area to blend smoothly with freeway traffic.
5. IPDE:
   a. Anticipate sudden slowing or stopping and/or merging at too low a speed.
   b. Allow extra distance between you and the vehicle ahead in case the other driver suddenly slows.
   c. Watch for little or no acceleration lane or yield signs. Wait for longer gap before attempting to enter freeway.

REFERENCE	CONTENT

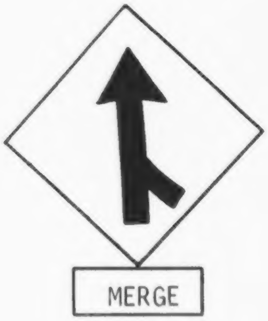


C. Helping Other Drivers Enter and Exit

1. When driving in the right-hand lane, you may find drivers attempting to enter the freeway. Help them by adjusting your speed or by moving into the next lane, if it is clear. This will create a gap for them to enter the freeway safely.



2. When you approach most entrance points, merge signs warn that other drivers may enter the freeway. A merge sign tells drivers to adjust their speed and location to ensure a smooth merge with the least disruption of traffic flow.



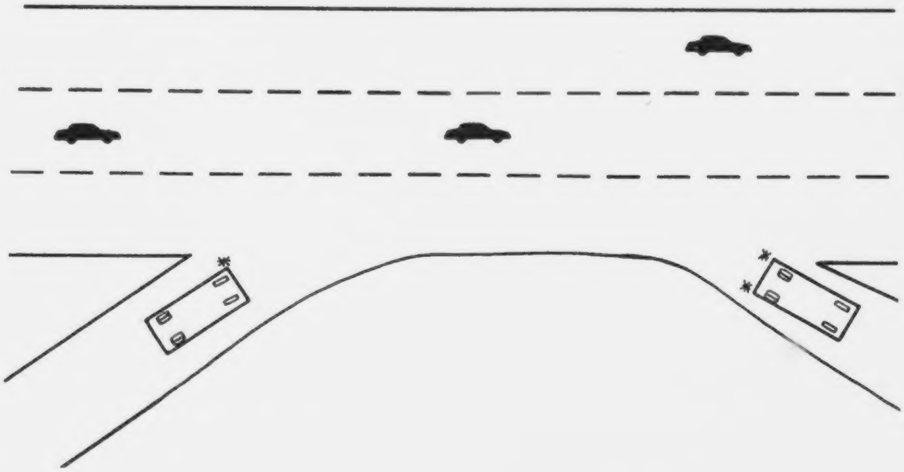
3. The right-hand lane is also a place where a driver ahead may slow for an exit. When you see an exit sign, be prepared for such an action.

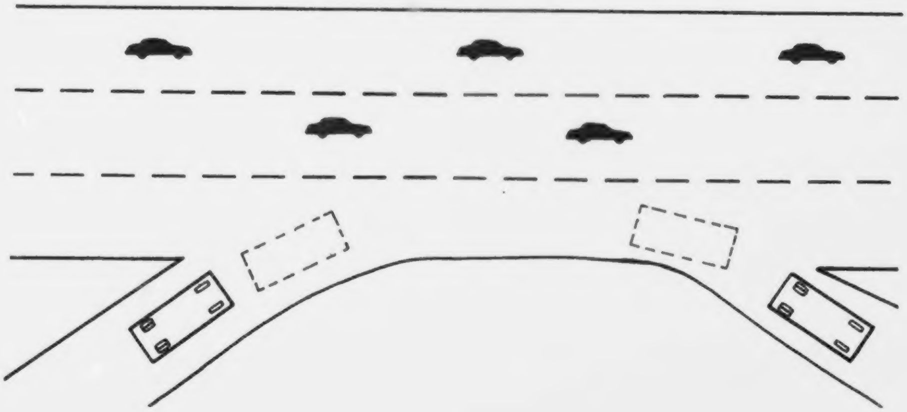
D. Choosing Speeds

1. Once on the freeway, choose a legal speed. Your speed should also be based on visibility, traffic, and road conditions. Drivers sometimes tend to lose their sense of speed during sustained, fast driving. They may gradually increase speed to a point far higher than intended. Frequent short glances at the speedometer will help reduce this tendency.
2. Speeds that are either slower or faster than that of most traffic will increase the risk of collisions. Choosing the speed used by most drivers will reduce conflicts, make driving more relaxed, and save fuel.

E. Choosing Lanes

1. Two-lane freeway
    a. Use right-hand lane for traveling.
    b. Use left-hand lane for passing.
2. Three-lane freeway
    a. The right-hand lane is a lower-speed through lane.
    b. The center lane is a higher-speed through lane.
    c. The left lane is a passing lane.
    d. When approaching interchanges, move out of the right lane, if traffic conditions permit, to avoid merging conflicts.

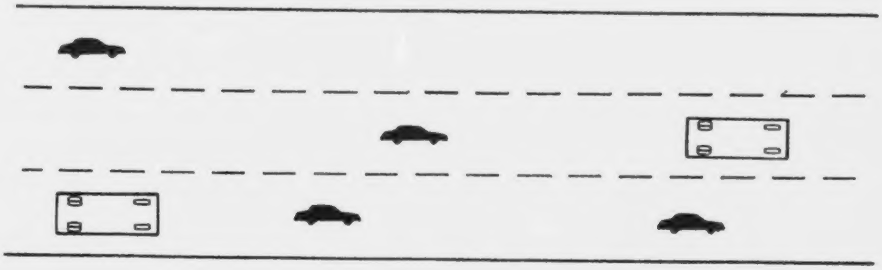




REFERENCE	CONTENT

F. Changing Lanes

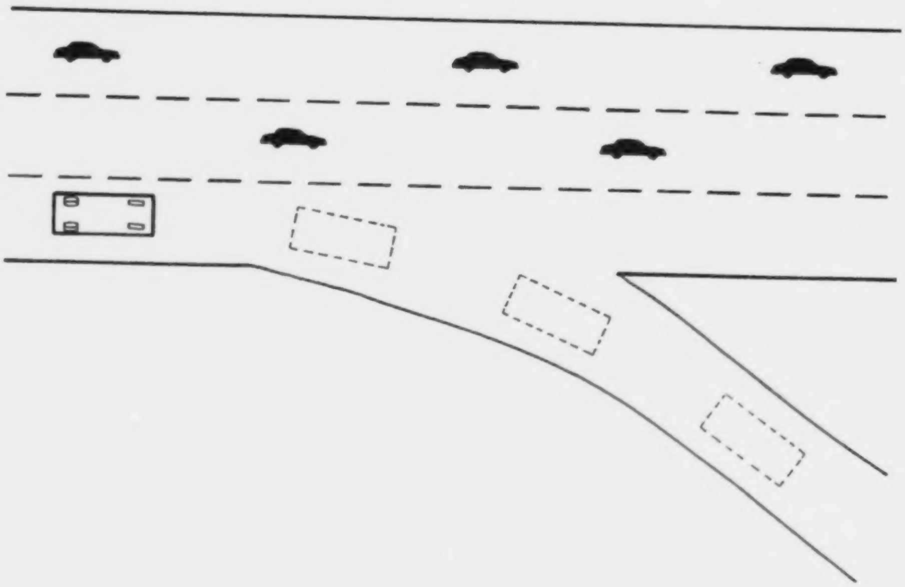
1. Check for ample space between your vehicle and the vehicle ahead.
2. Make sure that the vehicle ahead or in another lane is not about to change lanes and the vehicle behind your vehicle is not about to pass.
3. Before moving into another lane, check all mirrors and glance over shoulder.
4. Signal your movements in advance of the lane change and avoid any sudden or unexpected moves that could startle drivers near you.
5. Gradually steer into the next lane.
6. Avoid reducing speed during the lane change, because this can create a hazard by forcing a driver in the next lane to brake.



G. Leaving the Freeway

1. Look ahead for the signs indicating what lane to use for the desired exit.
2. When leaving the freeway, enter the lane next to the deceleration lane a mile or more before your intended exit.
3. Avoid slowing down before entering the deceleration lane.

4. Signal and enter deceleration lane.
5. Reduce speed in deceleration lane.
6. Reduce speed to the posted speed for the ramp.
7. Check speedometer at exit ramp.
8. Once you are off the freeway, you will encounter two-way traffic, intersections, parked cars, pedestrians, and traffic moving at slower speeds.



REFERENCE | **CONTENT**

- H. Complex Interchanges
    - 1. Instruct the trainee that careful checking is necessary (visual lead), especially when access lanes parallel to the freeway require entering traffic to merge twice in a short space.
    - 2. Review on-ramp procedures:
        - a. Acceleration lane
        - b. Turn signal usage
        - c. Mirror usage
        - d. Proper following distances
        - e. Lane changes
    - 3. Review off-ramp procedures:
        - a. Deceleration lane
        - b. Turn signal usage
        - c. Mirror usage
        - d. Wrong-way drivers on exit ramps
    - 4. Ramps not always of uniform length
    - 5. Curved ramps/speed
    - 6. Design characteristics (for example, inverse)

IX. OTHER URBAN AREA DRIVING

- A. Downtown Problems
    - 1. Alleys
        - a. Speed limit (15 mph)
        - b. Clearances (vertical/lateral)
        - c. Review of IPDE
        - d. Proper mirror usage
    - 2. Review of space cushion
        - a. Cars in front
        - b. Cars behind
        - c. Cars beside you
        - d. Proper mirror usage

REFERENCE	CONTENT

3. Review of lane selection
    a. Parked cars
    b. Pedestrians
    c. Bicycles
    d. Children
    e. Review of shopping center traffic
        (1) Parked car dangers
        (2) Clearances (vertical/lateral)
        (3) IPDE
        (4) Pedestrians
        (5) Proper mirror usage
        (6) Bus parking situations
4. Review of various intersection configurations
    a. Crosswalk procedures
    b. Limit-line procedures
    c. Left-turn and right-turn procedures
    d. Proper gear selection
    e. Proper mirror usage

RAILROAD GRADE CROSSINGS

Begin by having the trainee stop at a railroad crossing in an isolated area and explain the stop requirements. Gradually encounter more complex railroad crossings and have the trainee identify characteristics that are peculiar to these crossings.

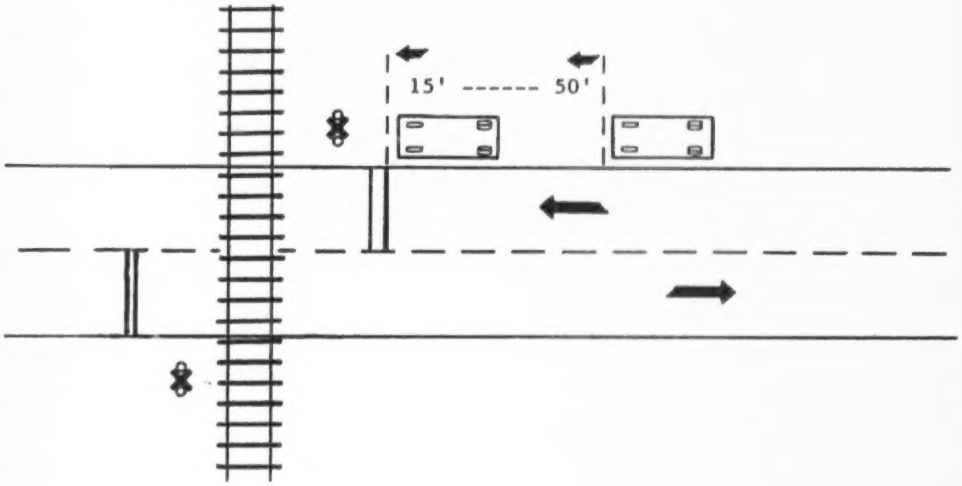
Constantly evaluate the trainee's visual lead and reaction to possible problems when approaching railroad crossings.

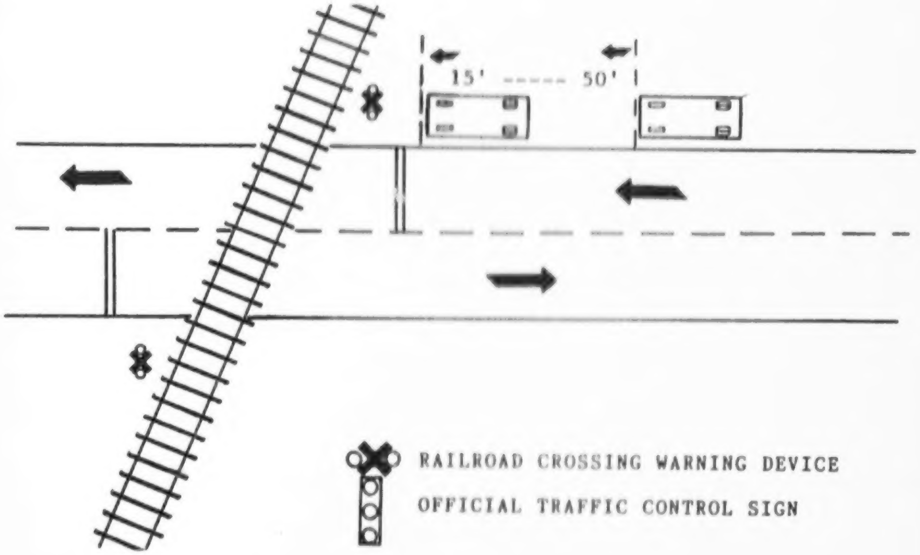
For this lesson, use commentary driving with the trainee, to provide a better basis for evaluation of the trainee. At least half of the commentary in this lesson should be initiated by the trainee in response to situations in the railroad crossing scene.

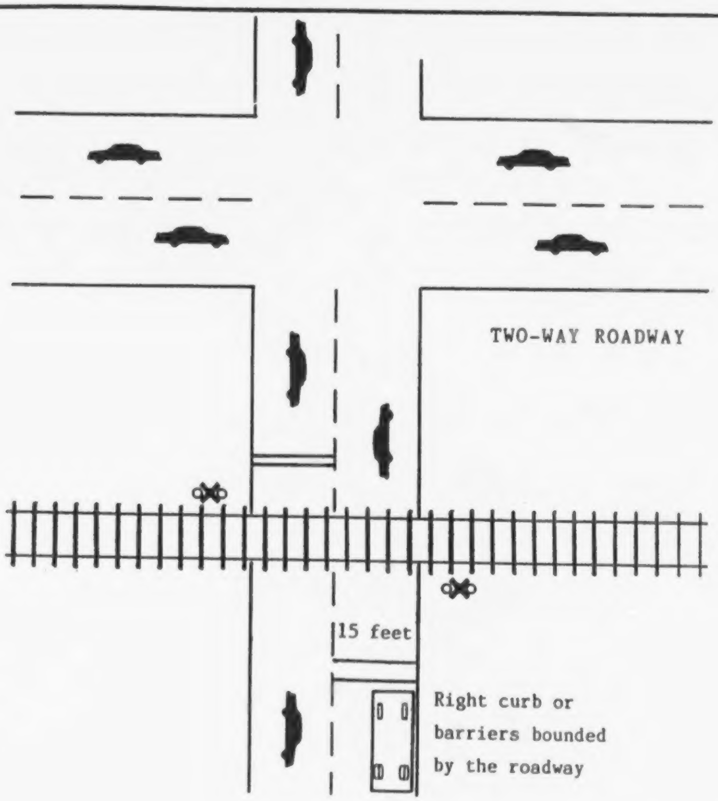
REFERENCE	CONTENT
	Begin the process of moving the trainee out to a more independent position that is similar to the one he or she will occupy when functioning as a regular driver. The instructor now assumes less control, and the trainee accepts more.
	Demand precision in the maneuvers and skills that the trainee performs. Allowing sloppy performance reflects poorly on both the instructor and the trainee.
VC 22452 13 CCR 1228	I. REQUIRED STOPS Instruct trainee in the following procedures during operation for required stops.
	A. Stop the vehicle not less than 15 feet nor more than 50 feet from the nearest rail of the track. Emphasize that the 15-foot and 50-foot lines are applicable to the front, sides, and rear of the vehicle.
VC 22502	B. Align the vehicle parallel and as close as practicable to the appropriate edge of the highway. Note! Every vehicle stopped or parked on a roadway where there are adjacent curbs shall be stopped or parked with the right-hand wheels parallel to and within 18 inches of the right-hand curb.
VC 22502	Exception: On a one-way roadway, vehicles may be stopped or parked with the left-hand wheels parallel to and within 18 inches of the left-hand curb. This exception shall not apply on the roadways of a divided highway.
	C. Prevent vehicle rollback by applying the service brake or parking brake.
	D. Listen - Shut off noisy equipment, and quiet passengers.
School Bus	E. Look - Fully open the entrance door of a Type 1 bus or open the window on a Type 2 bus, and look in both directions along the track for any approaching train and for signals indicating the approach of a train.

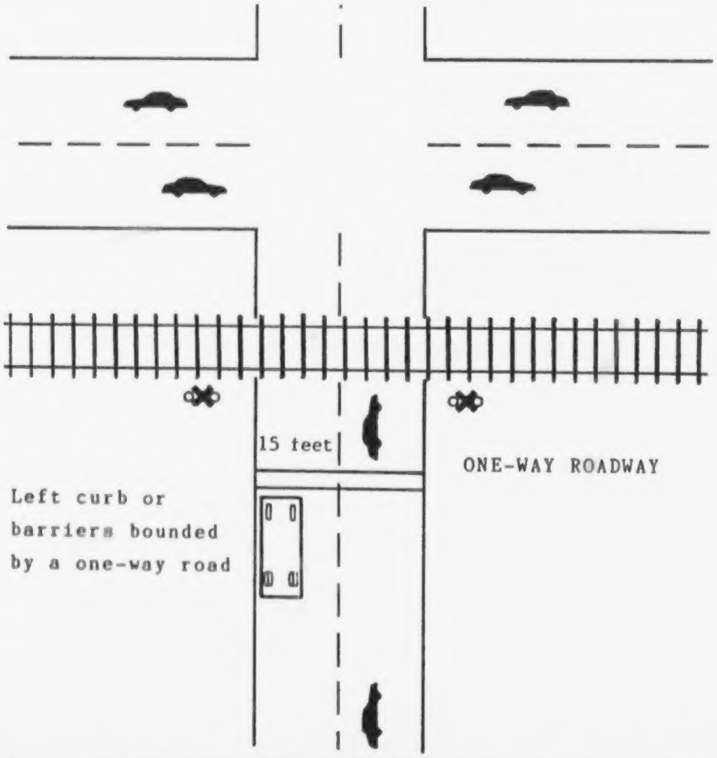
F. Proceed - Only when the tracks are safe to cross and the door is closed, in appropriate starting gear.

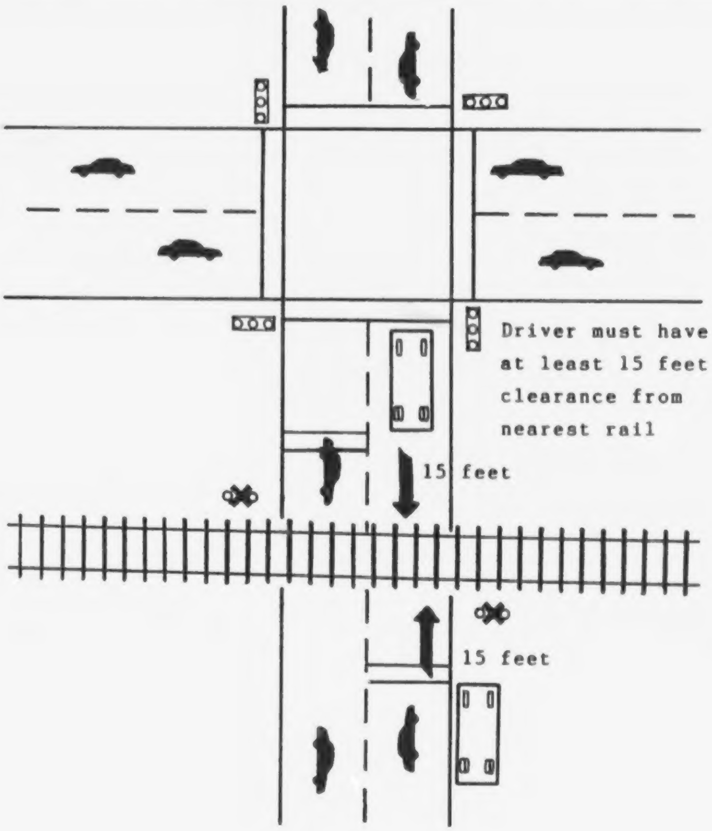
G. While proceeding across the tracks, the driver shall not shift the gears manually.

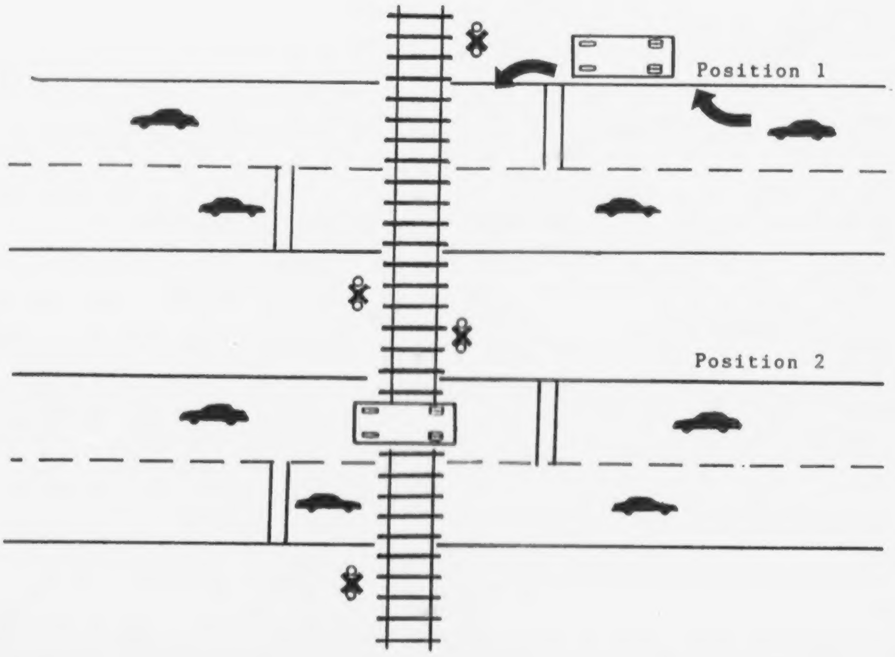


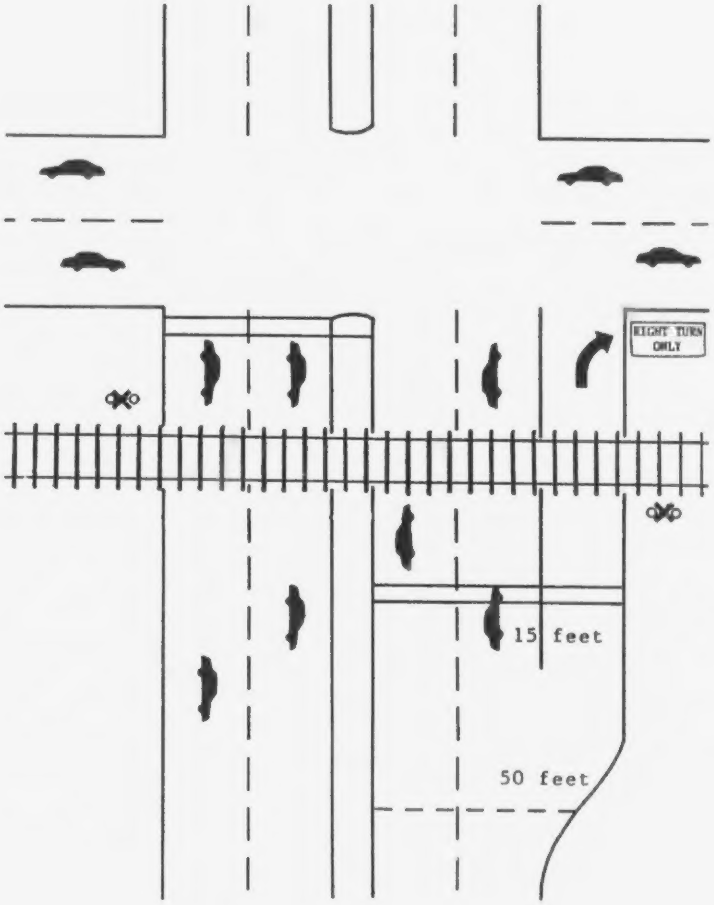

15' ----- 50'
RAILROAD CROSSING WARNING DEVICE
OFFICIAL TRAFFIC CONTROL SIGN


TWO-WAY ROADWAY
15 feet
Right curb or
barriers bounded
by the roadway


15 feet
ONE-WAY ROADWAY
Left curb or
barriers bounded
by a one-way road


Driver must have at least 15 feet clearance from nearest rail
15 feet
15 feet

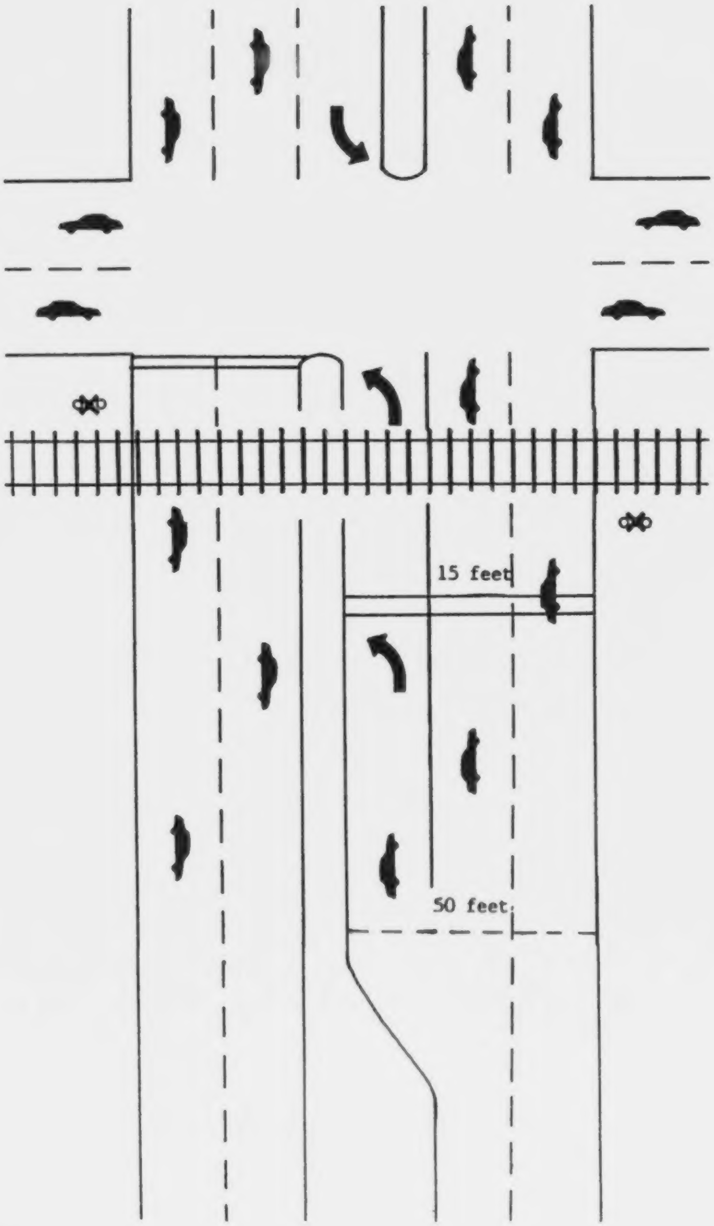

Position 1
Position 2


RIGHT TURN ONLY
15 feet
50 feet

NOTE:

The Department suggests that all maneuvering scenarios should be presented to area State Highway Patrol officials for legal interpretation and vehicle positioning for the railroad grade crossing illustrated above.

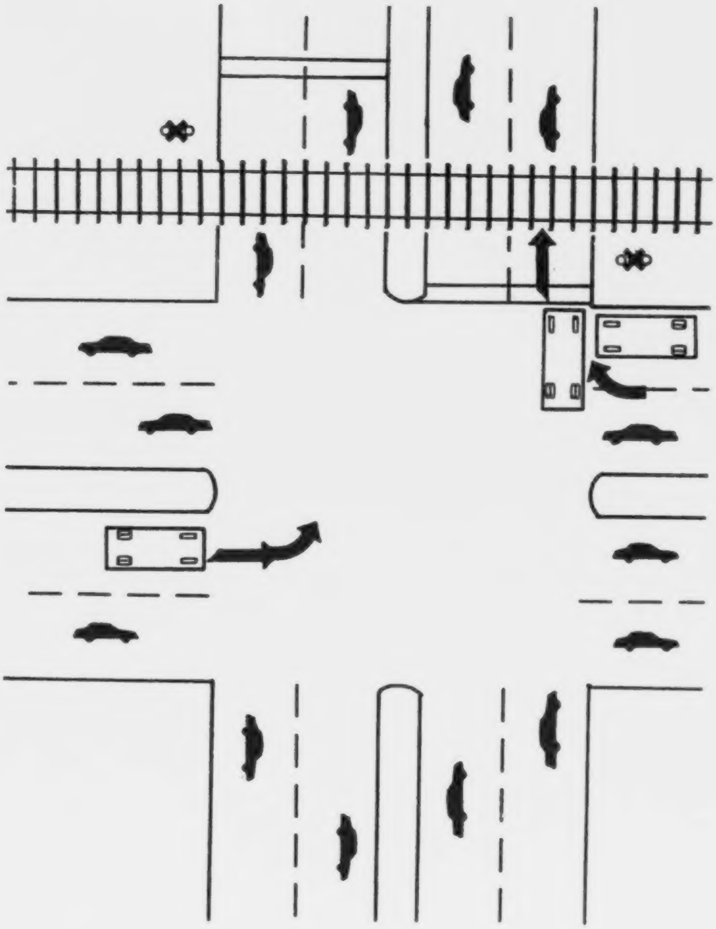
REFERENCE	**CONTENT**



NOTE:

The Department suggests that all maneuvering scenarios should be presented to area State Highway Patrol officials for legal interpretation and vehicle positioning for the railroad grade crossing illustrated above.

REFERENCE	CONTENT



NOTE:

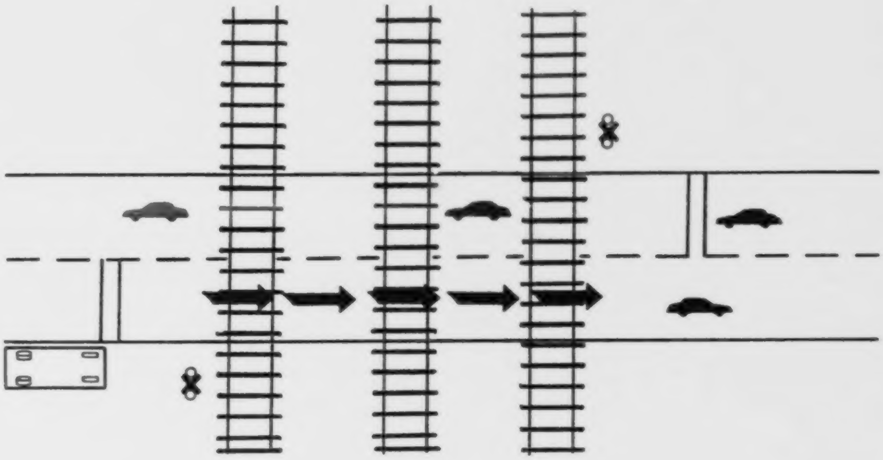
The Department suggests that all maneuvering scenarios should be presented to area State Highway Patrol officials for legal interpretation and vehicle positioning for the railroad grade crossing illustrated above.

REFERENCE	CONTENT

II. MULTITRACK CROSSING

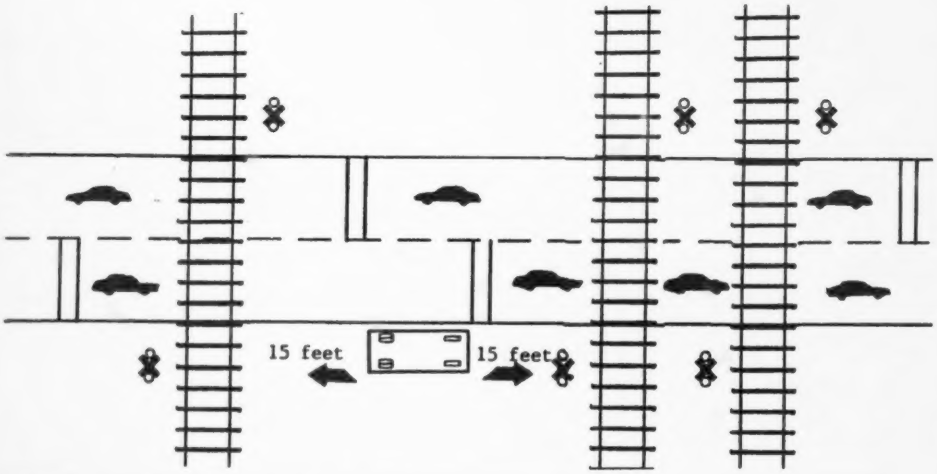
A. Instruct the trainee how to determine if a railroad grade crossing consists of more than one track.

1. Instruct that a railroad crossbuck sign is used at the crossing itself. A sign below the crossbuck tells if there is more than one track within the crossing.
2. Instruct the trainee to identify the crossbuck and the number of tracks within the crossing. Instruct the trainee to make the required stop at the first track; and, when safe, proceed across tracks designated on the crossbuck.



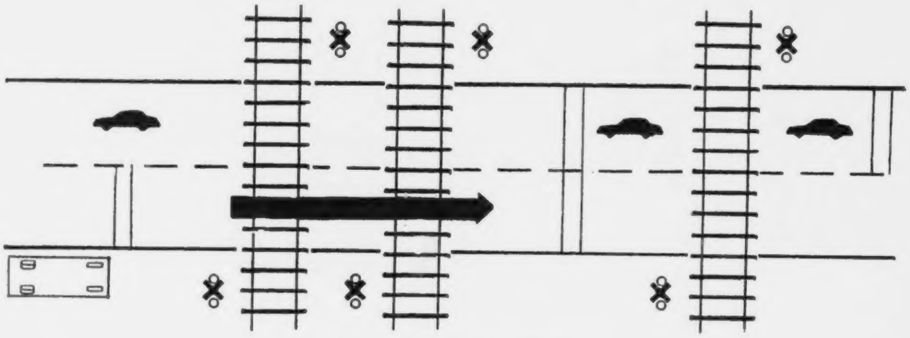
MULTI TRACK

REFERENCE	CONTENT
VC 22452	B. Instruct the trainee that some crossings also have gates and flashing lights. Have the trainee stop before the gates are lowered across his or her side of the road; never stop under the gates. No driver shall proceed through, around, or under any railroad crossing gate while such gate is closed.
VC 21351.5	C. Instruct the trainee to look for the possibility of a standard octagonal red and white stop sign at a crossing. If there are flashing lights or a stop sign, you must stop, whether or not you have pupils aboard. Do not proceed until you are certain that no train is coming. The Department of Transportation or local authorities, with respect to highways under their respective jurisdictions, may erect stop signs to require the traffic on a highway to stop before crossing any railroad grade crossing designated by the agency having jurisdiction of the highway as a major crossing with demonstrated need for stop signs, except a railroad grade crossing which is controlled by automatic signals, gates, or other train-activated control devices.
	D. Instruct the trainee to look for a posted crossbuck between each set of tracks. 1. A driver must stop if there is space for the bus plus 15 feet in front and behind the bus to the nearest track.



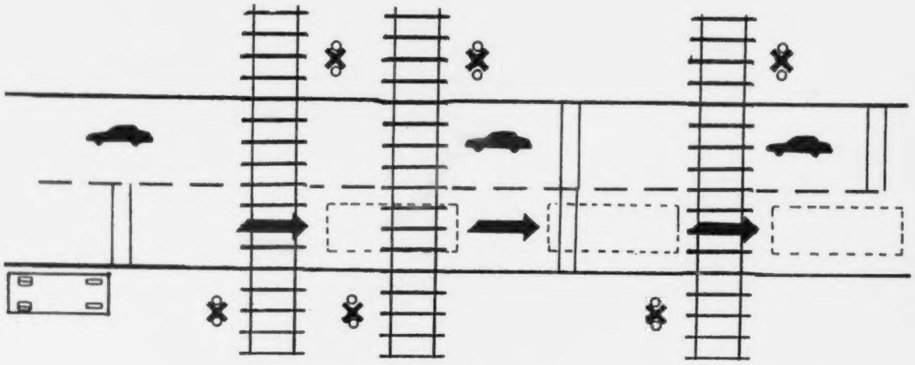
REFERENCE	CONTENT

2. A driver should not stop if there is not a space for the bus plus 15 feet in front and behind the bus to the nearest track.



MULTITRACK CROSSING

3. Instruct the trainee to make the required stop at the first set of tracks. If there is not sufficient space between the sets of tracks to legally and safely stop the vehicle, the trainee should proceed across all tracks when it is safe.

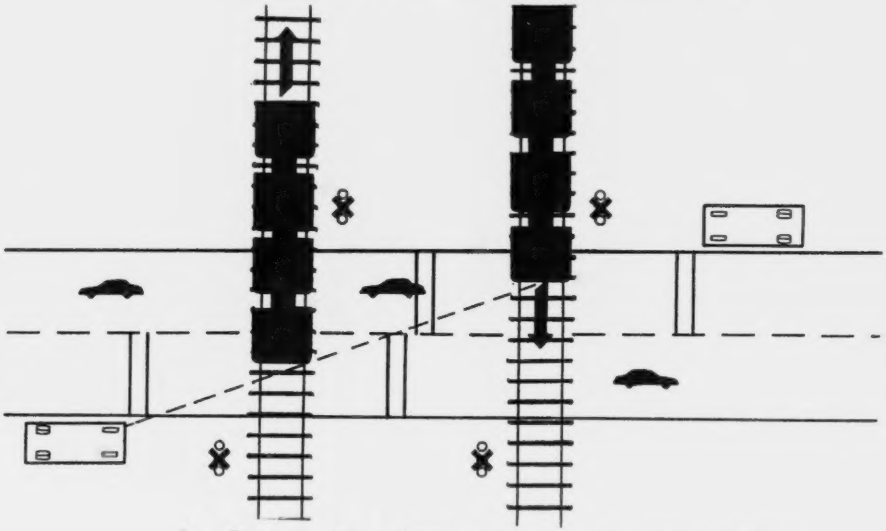


MULTITRACK CROSSING

REFERENCE	CONTENT

4. Instruct the trainee to make sure no train is approaching on any of the tracks.

   a. Instruct the trainee to watch that second track. After a train passes, wait until other tracks become visible before proceeding. Instruct the trainee to be patient. Darting out as the train passes may put you in the path of another train on a second track.



   b. Instruct the trainee to never drive onto a railroad track until they are certain that they can drive safely all the way across. Emphasize to be sure the traffic ahead will not stop and box you in on a track. Instruct the trainee to wait for traffic to clear before proceeding across tracks.

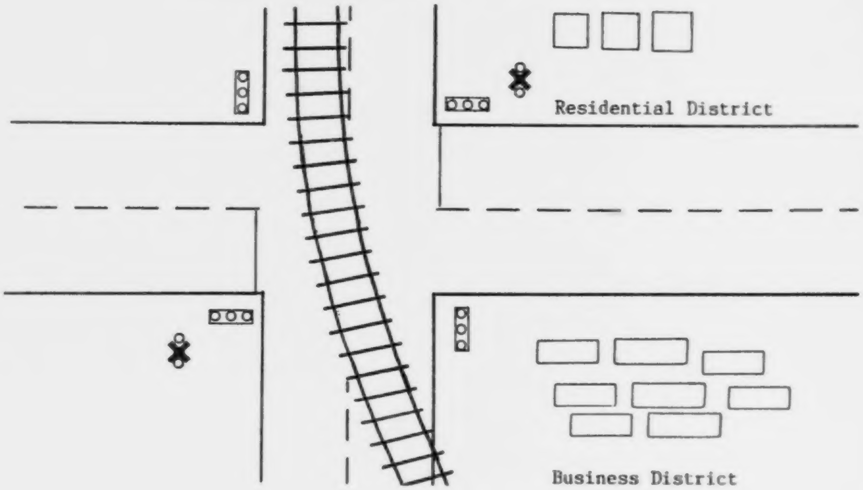
   c. Instruct the trainee that if the vehicle stalls on the track with a train close by, evacuation of the vehicle must be immediate. Evacuate passengers away and in the direction of the approaching train to avoid being hit by flying wreckage.

VC 22452

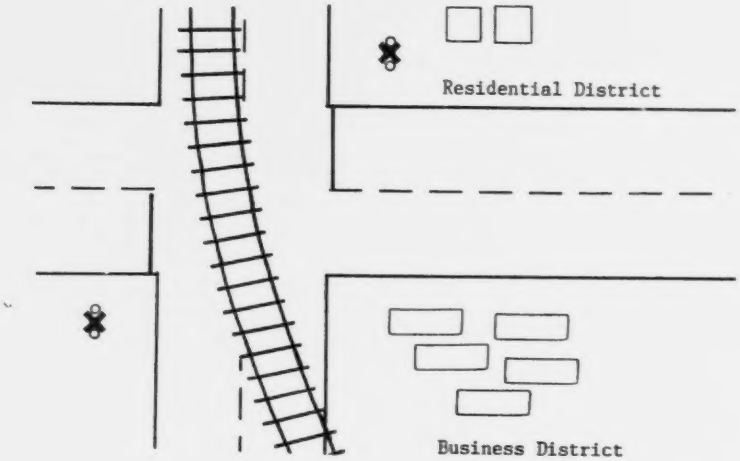
III. STOPS NOT REQUIRED AT RAILROAD CROSSINGS

A. Instruct the trainee in the exceptions of VC 22452, railroad grade crossings. A school bus need not stop at the following railroad grade crossings:

1. Where the tracks run along and on the roadway within a business or residential district.

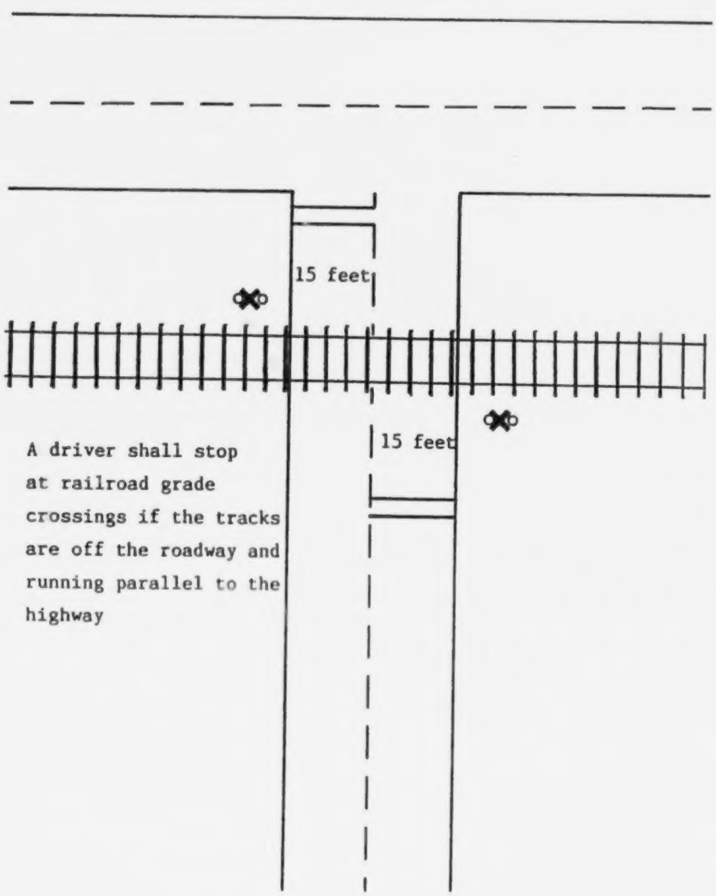

Residential District
Business District

TRAFFIC SIGNAL CONTROLLED


Residential District
Business District

UNCONTROLLED

This procedure does not apply where the tracks are off the roadway and running parallel to the highway.


15 feet
15 feet
A driver shall stop at railroad grade crossings if the tracks are off the roadway and running parallel to the highway

2. Where a traffic officer or an official traffic control signal directs traffic to proceed. The Department of California Highway Patrol Information Bulletin, July 17, 1978, clarifies the interpretation of Vehicle Code Section 22452(b)(2) for the term "official traffic control signal."

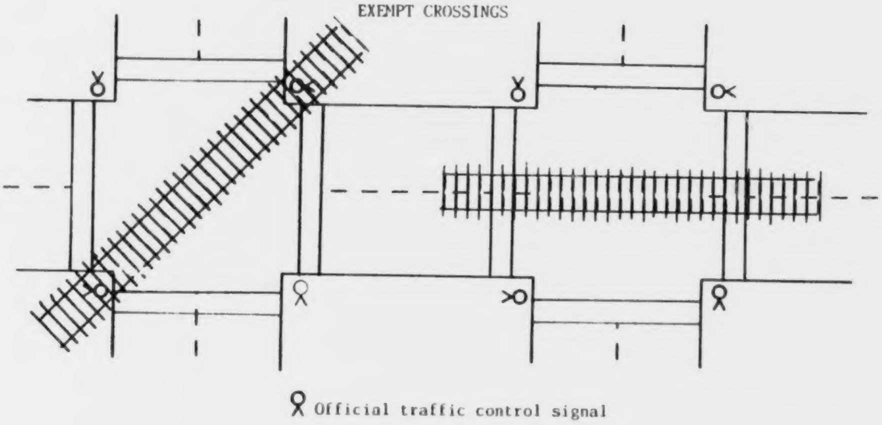
REFERENCE	CONTENT

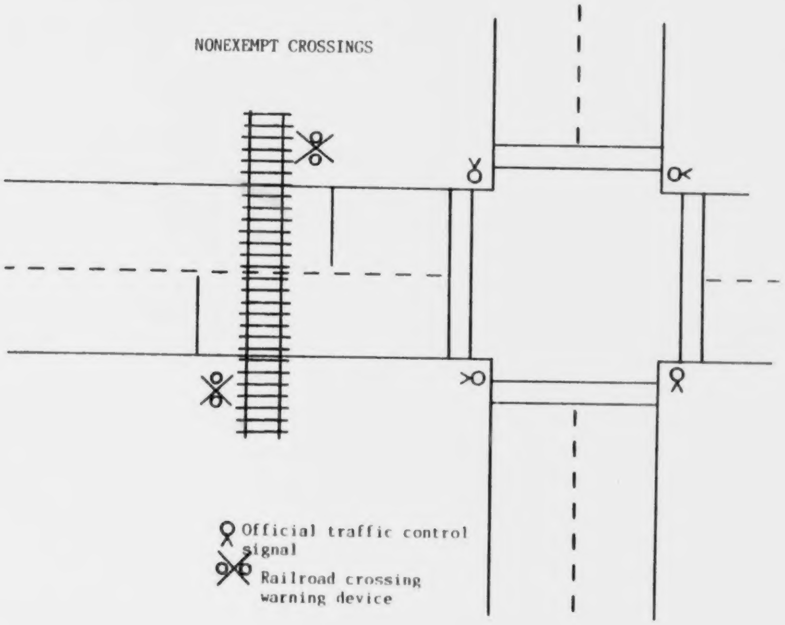
The official traffic control signal referred to in this subsection is defined in Vehicle Code Section 445. For clarification, this signal is a "stop and go" signal commonly known as a "traffic light." It directs only movements of traffic at or through an intersection of two or more roadways. The term "official traffic control signal" does not mean a railroad grade crossing warning device, for example, "wigwag" or alternating flashing red lights.

Therefore, the vehicles specified in Vehicle Code Section 22452(a) are exempt only from stopping at a railroad grade crossing that runs through an intersection of two or more roadways where traffic is controlled by an official traffic control signal.

Most of the confusion in applying this exemption has arisen over railroad grade crossings that are outside, but within 200 feet, of a signal-controlled intersection. Most of these crossings are controlled by railroad crossing warning devices designed to preempt the official traffic control signal at the nearby intersection when a train approaches. This is not the type of crossing exempted pursuant to Vehicle Code Section 22452(c)(2).

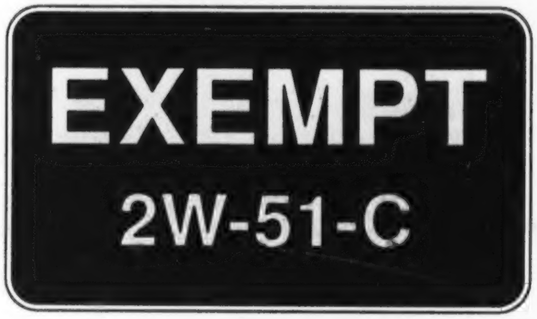
Both exempt and nonexempt crossings are illustrated in the following diagrams:


EXEMPT CROSSINGS
Official traffic control signal


NONEXEMPT CROSSINGS
Official traffic control signal
Railroad crossing warning device

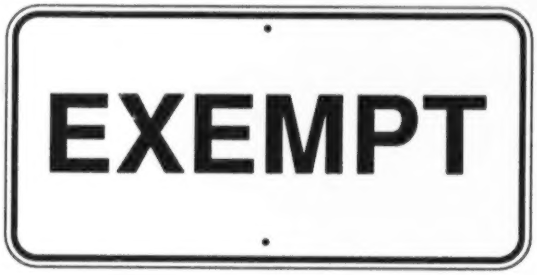
NOTE: The above illustrations were taken from the 1978 CHP Information Bulletin related to exempt railroad grade crossings.

3. Where an exempt sign was authorized by the Public Utilities Commission prior to January 1, 1978, all crossings that were exempt prior to January 1, 1978, will remain exempt. The signs have a black background with yellow border and lettering. A school bus need not stop where an exempt sign of the old design is posted. They are subject to review to see if any change in status should be made.



(Black background - yellow border and lettering)

4. Where an official railroad crossing stop exempt sign in compliance with Section 21400 has been placed by the Department of Transportation or local authority pursuant to Section 22452.5. This paragraph shall not apply with respect to any school bus or to any school pupil activity bus. A school bus or SPAB shall stop at tracks authorized to be posted exempt after January 1, 1978. These railroad crossings are posted with the "exempt" sign illustrated below.



(Yellow background - black border and lettering)

DRIVER PERFORMANCE REVIEW

SKILLS LEVEL FOUR

The driver must successfully demonstrate competence in each task listed in this skills level before progressing to the next skills level. On completion of each task, the behind-the-wheel trainer or state-certified instructor is to initial and date the driver performance review.

THE STATE-CERTIFIED INSTRUCTOR'S SIGNATURE VERIFIES THE DRIVER'S COMPETENCY IN THIS SKILLS LEVEL.

INSTRUCTOR'S SIGNATURE ______________________________ **ID NO.** **DATE** __________

DRIVER'S SIGNATURE ______________________________ **EQUIPMENT CODE** __________ **BRAKE CODE** _____

NOTE: Time designation should be logged in ¼-hour minimums per square.

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
DEFENSIVE DRIVING										
1. Signs/signals/markings										
2. Visual techniques										
3. Managing time/space										
4. Lane control										
5. Managing speed										
6. Close-area maneuvering										
7. Turning comprehension										
8. Steering control										
9. Mirror use										
10. Judgment										
11.										
12.										
13.										
14.										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
INTERSECTIONS										
1. Signs/signals/markings										
2. Visual techniques										
3. Managing time/space										
4. Lane control										
5. Managing speed										
6. Close-area maneuvering										
7. Turning comprehension										
8. Steering control										
9. Mirror use										
10. Judgment										
11.										
12.										
13.										
14.										
SINGLE/MULTILANE HIGHWAY										
1. Signs/signals/markings										
2. Visual techniques										
3. Managing time/space										
4. Lane control										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
5. Managing speed										
6. Close-area maneuvering										
7. Turning comprehension										
8. Steering control										
9. Mirror use										
10. Judgment										
11.										
12.										
13.										
14.										
BRIDGES/TUNNELS 1. Signs/signals/markings										
2. Visual techniques										
3. Managing time/space										
4. Lane control										
5. Managing speed										
6. Close-area maneuvering										
7. Turning comprehension										
8. Steering control										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
9. Mirror use										
10. Judgment										
11.										
12.										
13.										
14.										
HILLS UP/DOWN										
1. Starting										
2. Stopping										
3. Rollback										
4. Brake use										
5. Parking										
TRANSMISSION CONTROL										
1. Defensive driving										
2. Intersections										
3. Hills										
4. Single/multilane highway										
5. Bridges/tunnels										
6.										
7.										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
ENGINE CONTROL 1. Defensive driving										
2. Intersections										
3. Hills										
4. Single/multilane highway										
5. Bridges/tunnels										
6.										
7.										
BRAKE CONTROL 1. Defensive driving										
2. Intersections										
3. Hills										
4. Single/multilane highway										
5. Bridges/tunnels										
6.										
7.										
RAILROAD CROSSINGS 1. Signs/signals/markings										
2. Visual techniques										
3. Managing time/space										
4. Lane control										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
5. Managing speed										
6. Close-area maneuvering										
7. Steering control										
8. Mirror use										
9. Vehicle control										
10. Door use										
11. Judgment										

INSTRUCTOR'S

BEHIND-THE-WHEEL GUIDE
FOR
CALIFORNIA'S BUS DRIVER'S TRAINING COURSE

SKILLS LEVEL FIVE

SPECIALIZED DEFENSIVE DRIVING TECHNIQUES

CONTENTS

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DRIVER PERFORMANCE REVIEW

REFERENCE	CONTENT

PURPOSE:

To provide each trainee with the knowledge and procedures necessary to operate a vehicle in hazardous situations or under adverse conditions

OBJECTIVES:

1. Introduce the trainee to a complex and stressful traffic environment in night driving conditions.
2. Introduce the trainee to the hazards of driving during adverse weather conditions.
3. Develop the skills necessary to proficiently operate a vehicle in hazardous situations or adverse conditions.

NOTE TO THE INSTRUCTOR:

This material is designed to enhance the basic defensive driving techniques that were addressed in the preceding skills level. This material also contains specific information on more-advanced defensive driving techniques.

SPECIALIZED DEFENSIVE DRIVING - GLOSSARY OF TERMS

ACCELERATION LANE

Lane used to adjust speed of the vehicle before merging with through traffic

ACCELERATOR

Throttle, gas pedal

ADHESIVE FRICTION

Traction

BLACK ICE

Clear water frozen on black pavement

BRAKE FAILURE (AIR LOSS)

Sudden drop in air pressure due to a malfunction or failure

BRAKE LINING

Friction material riveted to the brake shoes

COMMENTARY DRIVING

A technique in which the trainee verbalizes all important driving actions and thoughts

DECELERATION LANE

Lane used to slow the vehicle when exiting a freeway or highway

EMERGENCY STOPPING SYSTEM

Backup system used if service brake is inoperative

FISHTAIL

Rear end of vehicle swerving from side to side while moving forward

FOLLOWING DISTANCE

Distance between two moving vehicles

HAZARD LIGHTS

Four-way flashers

HYDROPLANING

Presence of a wedge of water under the tires that causes the tires to ride on water and not on the road surface

REFERENCE	CONTENT

IMAGINARY EXPERIENCE

Creating hypothetical driving problems and imagining how to solve them

LOCKUP OF BRAKES

Severe application of service brakes, causing all wheels to stop turning

REFLECTORS

Warning devices that reflect the lights of approaching vehicles

ROCKING THE BUS

Method used to attempt to move a vehicle from an immobile position (alternately putting the vehicle in reverse and low gears)

SERVICE BRAKE

Foot brake

SNOW BLINDNESS

Deteriorated vision caused by sunlight reflected from snow or ice

SPACE CUSHION

Distance between two vehicles in a moving or stopped position

TAILGATING

Following too close

TRACTION

The adhesive friction between the tires and the road surface

VACUUM BOOSTER

A system on some vehicles used to assist in the application of the brakes of a vehicle

WHITE ICE

A condition you can normally see, such as frost or snow

WHITE OUT

A polar condition caused by a heavy cloud cover over snow, in which the light coming from above is approximately equal to the light reflected from below (The condition is characterized by the absence of shadow, the invisibility of the horizon, and the discernibility of only very dark objects.)

REFERENCE	CONTENT

VEHICLE SELECTION

In the previous lesson the trainee was introduced to general defensive driving techniques. In this lesson trainees will be learning and developing more specific defensive driving techniques on all the different types of vehicles they are qualified to operate. All vehicles to be driven must be equipped and maintained as required by law or regulation and must be in safe operating condition.

SITE SELECTION

Because of the specific skills addressed in this material, the site selection may vary. Extreme caution should be exercised when conducting lessons on adverse conditions.

NIGHT DRIVING

Probably the most common error committed by drivers during darkness is driving beyond their headlights. Most freeways or business districts have enough lighting to help offset this problem. On rural or unlighted roadways, a driver needs to periodically assess the limits of visibility within the scope of the vehicle's headlights. Speed should be adjusted to allow adequate reaction time. The following items should be discussed:

A. Visibility

   1. Darkness limits the big picture. The big picture is limited to the area illuminated by headlights.
   2. The ability to judge distance between vehicles and other objects diminishes.
   3. The rate of closure is affected. During darkness, it is difficult to judge the rate of deceleration of other vehicles and objects in the limited big picture.

Perform these maneuvers in twilight, moving into complete darkness.

B. Mirrors

   1. Emphasize that mirror adjustment is critical because darkness reduces the driver's seeing ability.

REFERENCE	CONTENT

2. Convex mirrors are helpful, but objects are harder to distinguish at night.
3. Depth perception is limited when using the flat mirrors at night. Glare of other headlights and interior lights limit the driver's ability to perceive distances.
4. The rate of closure is affected extremely. Trying to judge the rate of deceleration of another vehicle at night, in a flat mirror, affects judgment of distances of vehicles behind your vehicle.
5. Identification of other vehicles in the rearview mirrors is extremely difficult.

C. Safety Procedures for Night Operation

1. Keep windshield clean inside and outside.
2. Keep mirrors clean and adjusted properly.
3. Reduce speed:
    a. Because visibility is diminished, the driver's ability to sort out different objects is reduced.
    b. The process of changing the focus to a distant point to the left when making a left turn or to a distant point to the right when making a right turn is reduced at night, resulting in a possible unclear perspective of the entire turning maneuver and the position of the vehicle within the turning area.
    c. Scanning, which involves constantly moving or sweeping the eyes across the path of travel in order to identify relevant traffic and environmental characteristics, is limited to the search area illuminated by the headlights.

4. Increase following distances:
   a. The vehicle speed must be adjusted to stop within the distance illuminated in the headlights.
   b. Use low beams when the vehicle is 500 feet from an oncoming vehicle.
   c. When following another vehicle, switch to low beams within 300 feet.
   d. Use high beams only in open country when other vehicles are not near.
   e. Increase the following distance.
5. Night blindness
   a. Train at night to determine if the trainee can adjust to dark conditions. Night blindness results when there is too much light for the driver's eyes to adjust to darkness. Look for:
      1. Inability of trainee to identify objects within the driving environment at night
      2. Making intentions known to other drivers well in advance
      3. Driving at a safe speed for conditions
         a. Flow with traffic
         b. Not appreciably faster or slower
      4. Does not wander within the lane
      5. Prepares for exits well in advance
      6. Narrow roads - Trainee constantly hugs one side of a traffic lane.
      7. City driving - Trainee constantly swings wide to avoid objects.
6. Adverse weather conditions at night present special problems.
   a. Explain to trainee that:
      1. Rain reduces visibility even more at night.

REFERENCE	CONTENT
	2. Water on the pavement reflects the headlights into the air instead of up the road (use low beams). 3. Roadway markings are difficult to see. It is hard to differentiate the shoulder from the roadway. 4. Water on windshield reduces vision. 5. Foggy windows reduce vision. Keep defrosters on to alleviate this problem. b. Fog, dust, and smoke can reduce visibility to zero. If this happens, you must signal, drive completely off the main-traveled portion of the roadway, and stop. If visibility is zero and if it is safe to do so, place red warning triangles behind your vehicle. 7. Animals a. Size - Cat or cow dictates what action or evasive maneuvers you need to take. b. Know what time deer or livestock may be on a roadway. c. Deer - The driver may only see outline, but deer stare into the headlights. Watch for eye glow. 8. IPDE - Instruct the trainee to use commentary driving during the night driving sessions to help the trainee avoid problems. a. Identify important elements such as vehicles, pedestrians, and roadway conditions. Reinforce: 1. Visual lead 2. Visual fix 3. Scanning b. Predict potential conflicts in the intended path of travel, such as an intersecting vehicle that does not appear to be slowing. Reinforce: 1. Lateral clearance 2. Lane position, obstructions, visual checks, speed

REFERENCE	CONTENT

c. Decide - Compensate for hazards. Reinforce:
  1. Alternative path of travel
  2. Positioning
  3. Compromise to simplify situations
  4. Speed reduction

d. Execute the maneuver decided. Reinforce:
  1. Accelerate
  2. Brake
  3. Steer
  4. Communicate

ADVERSE OPERATING CONDITIONS

This lesson will be conducted with the trainee behind the wheel and the instructor standing in the stepwell. During these exercises the instructors should continue observing the trainees and noting how they act and react to certain conditions.

Adverse operating conditions are not a valid excuse for being involved in an accident. Rain, snow, fog, sleet, or icy pavement have never caused an accident. These conditions merely increase the hazards of driving. Failure to adjust driving to the prevailing conditions could determine if an accident preventable.

You will face a variety of hazardous conditions that will demand alert and skillful action. Conditions you may face are ice, mud, snow, fog, smoke, dust, and wind. Mental adjustments must be made to fit the problem when it is apparent that you will encounter any of these conditions. Have the trainee comment on changing conditions.

Discuss the following conditions in greater detail with your trainees:

A. Rain

The first rain, after an extended dry spell, is usually the most dangerous. This is because the water mixes with accumulations of dust and oil and forms a very slippery road surface. The roads can remain slippery until enough rain has fallen to wash away the mixture.

Visibility can also be a minus factor. Road spray from other vehicles can coat your windshield with dirt and oil. Heavy rains can partially obscure road signs, traffic signals, edge of the road, pavement markings, and pedestrians.

Try to avoid driving through large areas of water or large puddles. Have the trainee comment on why this is dangerous and what can be done to help correct this.

Driving through deep water will result in brakes getting wet and reducing the braking capability considerably. To help correct this, when you clear the water, apply a light pressure to the brakes while also keeping pressure on the accelerator, and keep in mind the traffic behind you. This will allow heat created by the friction to dry the brakes.

Below are suggested procedures to be followed while operating in rainy conditions:

1. Use your heating/defrosting/defogging equipment to clear the inside surface of the glass of moisture.
2. Replace windshield wiper blades as soon as they show signs of streaking or missing areas on the windshield.
3. Besides slowing down, allow extra following distance.
4 Have good tires with proper tread depth.

REFERENCE	CONTENT

5. Avoid driving through deep puddles and accumulated water, as the water will affect your braking capabilities.
6. Be aware of the procedures used to dry the brake linings.
7. Have mirrors adjusted properly.

B. Mud

The primary cause of getting a vehicle stuck in the mud is a lack of good judgment on the driver's part. In most areas buses make their stops on a shoulder of the road that is usually dirt and on a slant. This is fine in dry weather. Have trainees relate what could happen in wet weather.

If the bus does get stuck in the mud, the following procedures may be helpful in freeing the vehicle:

1. Have the front wheels pointed straight ahead.
2. Try rocking the bus by alternately putting it into reverse and low.

C. Wind

The unseen phenomenon of wind can create severe hazards to vehicles operating in these conditions, especially large vehicles such as buses. The sides of buses act as a sail; and if the wind is strong and gusty, control of this vehicle may be more difficult.

When your vehicle is passing or being passed by another vehicle, the suction or change of pressure caused by this movement can push your bus from side to side.

D. Smoke

Smoke creates much the same hazards as fog.

When confronted with patches of heavy smoke that reduces visibility very suddenly, the driver should:

1. Drive with low-beam headlights, to throw the light down on the road.

2. Reduce speed and tap the brake pedal lightly to signal following traffic (use the hazard lights, if necessary).
3. Drive as far to the right as possible and watch the road edge.
4. Be prepared to make an emergency stop that may be required within the distance it is possible to see ahead.

E. Dust

High winds can create severe hazards for buses in the form of sand and dust storms. In addition to causing a sudden force on the vehicle, visibility decreases instantly. Severe sandstorms can cause major damage to glass and paint on the vehicles. As soon as the driver determines the vehicle will be entering a situation of dust or sandstorm, the driver should:

1. Close any open windows.
2. Maintain a firm grip on the steering wheel.
3. Follow procedures as outlined in the previous lesson on smoke.

F. Wheels Off the Road

On the roadway the driver may find the right wheels are off the pavement and on a soft or low shoulder. This seemingly harmless situation has been the direct cause of many fatal accidents. The driver's instinctive reaction to jerk the bus back onto the road can be deadly. Invariably, the tires will hang up momentarily on the edge of the pavement; then, when the wheel is turned more, the bus suddenly swerves across the roadway into opposing traffic or goes into a broadside skid. Below are suggested procedures to help the driver return the vehicle safely to the pavement.

1. If the wheels drop off the pavement, decelerate and straddle the edge of the road.
2. Keep a firm grip on the wheel and don't brake until the speed of the bus is reduced.
3. When the bus has slowed down considerably, ease the vehicle back onto the road.

G. Fog and Mist

Some areas of the state are in extremely heavy fog belts at certain times, and several serious accidents have occurred as a result.

The following procedures should be used by the driver for fog and mist conditions:

1. Windshield wipers and the defrosters should be started.
2. Speed should be lowered.
3. Buses should be well lighted for better visibility.
4. In extremely dense fog it will probably be safest to pull well off the roadway and stop. If that is the case, turn off all lights.
5. School district policies relating to "run or don't run" will be followed.
6. Radio stations have been very helpful in advising drivers about adverse weather conditions.

HYDROPLANING

This problem is created when there is enough water on the road and the speed is fast enough to create a wedge of water under the tires. This condition creates a loss of vehicle control.

NOTE:

There are contributing factors in hydroplaning. The following items should be discussed with the driver:

1. Water - It does not take much. Although hydroplaning is more likely to occur on roads covered with half an inch or more of water, it can happen with less.
2. Speed - Below 30 mph, a tire should disperse water under and around it, and maintain contact with the road. Above 20 mph, partial hydroplaning can occur. Above 55 mph, the tire may lose contact with the road, causing total hydroplaning.
3. Tires - Worn or underinflated tires invite hydroplaning and will do so on less water and at lower speeds. Good treads channel the water through the grooves without lifting the wheels.

4. Weight - The lighter the vehicle, the more chance of hydroplaning.
5. Weight distribution - If too much weight is concentrated in the rear of the vehicle, hydroplaning is also likely, for the front tires will tend to tilt up much like the bow of a speedboat.

Procedures:

The following procedures should be used by the driver when hydroplaning conditions are present.

1. Be alert for hydroplaning conditions. As we just mentioned, hydroplaning can occur with minimum moisture: dew, fog, or the first few raindrops.
2. If the steering begins to feel unstable, your tires are losing traction with the road surface. Ease off the accelerator and do not apply the brakes.
3. Follow the tracks of the car ahead. Their tires will clear away the water for yours. Don't tailgate. When hydroplaning conditions are present, you should increase your following distance.
4. If you anticipate hydroplaning conditions, increase your tire pressures too. But do not exceed the recommended maximum pressure.
5. Worn tires lower the speed required for hydroplaning. Check your tread depth and, if necessary, replace your tires. (Historical note: Treads were originally placed on tires to dissipate water and eliminate skidding.)

TRACTION

During this lesson the trainee will be made aware of the meaning of the word traction. Explain what the word traction means and the reasons that "adhesive friction" is important in our driving. Show trainee the area of tire that is actually in contact with the roadway. For example, on a tandem-axle "ten wheeler," all ten tires cover an area of a little over 2 square feet.

REFERENCE	CONTENT

This is an area about the size of the driver's seat cushion. "Where the rubber meets the road" is not a very large area to control 12 tons of bus.

The following items should be discussed with the driver:
1. Bouncing tires have very poor and uneven traction.
2. An increase in speed causes a decrease in traction.
3. The less traction, the greater the chances for a skidding accident.
4. Maximum braking takes place just before the skid.

WINTER DRIVING

Explain the terms, "white ice" and "black ice." Some areas on winter roads will stay frozen during the day. Most roadways are posted with signs that warn of this hazard. Bridges and overpasses are first to freeze. Explain why your bus should be prepared for winter driving. The engine should be tuned; the exhaust system should be in good condition; and the brakes, tires, heater, and defroster should all be in first-class condition. The radiator should have proper coolant to protect against low temperatures. Winter driving kits composed of deicer, starting fluid, chain links, wire, a pair of pliers, flares, ice scraper, and a flashlight can aid the driver in winter driving.

Emphasize that a safe, professional driver will be prepared to mentally and physically drive their vehicle safely in any kind of conditions. When driving in snow and ice, the driver should:
1. Be mentally prepared to face all kinds of weather.
2. Go to work early to make thorough preparation and start the trip earlier than usual.
3. Chains should be installed.
4. Warm up the bus well.
5. Clean lights, mirrors, and front and rear windows.
6. Check all exits for smooth operation.

REFERENCE	CONTENT

7. Have heater and window defrosters operating.
8. If sanders are used, be sure they are full and operable.

On Snow:

Chains increase starting ability as well as they do on ice.

When starting, the driver should engage the clutch very slowly and accelerate slowly and steadily to avoid spinning the wheels. The driver should establish and maintain a greater distance than usual from other vehicles and allow for ample stopping time.

On Ice:

Black ice often looks like wet pavement. When direct sunlight has melted the ice quickly, look for shaded areas that may still be icy. Tunnels, bridges, and overpasses usually remain icy longer than other portions of the road.

Approach curves slowly, drive at speeds lower than posted, and make smooth turns to avoid braking. The key to controlling any vehicle is keeping from spinning or locking the wheels.

TIRE CHAINS

When vehicles are operating in areas where snow and ice may be encountered, tire chains should be on board at all times. The following procedures should be used:

1. Be sure the chains are the correct size for the tires.
2. Training drivers to "chain up" should be done in the fall before winter conditions arrive.
3. If tires are changed, recheck the chains to ensure they fit properly.
4. Obey road signs regarding use of chains.

5. Follow district or company policy on "chaining up."
6. When tire chains are on vehicles, the maximum speed limit is 25 miles per hour. However, no person should ever drive faster than prevailing conditions.

TIRE BLOWOUT (Rapid Air Loss)

Modern tires are very durable; however, under certain circumstances, blowout or rapid air loss occurs. Your actions will depend on the conditions surrounding you at the moment. The following are some procedures to follow in a tire blowout or rapid air loss situation:

Front or Rear Tire - Rapid Air Loss

1. Keep a firm grip on the steering wheel. Discuss position of hands on steering wheel.
2. Immediately press down on the accelerator.
3. Steer the vehicle in the opposite direction of the deflated tire, as necessary.
4. When you have stabilized the vehicle, slowly let off of the accelerator and bring the vehicle to a smooth stop.
5. Turn on hazard lights.
6. Evacuate the bus, if necessary.

NOTE:

Use extreme caution when applying the brakes. Use of the service brake could cause the vehicle to pull severely in the direction of the deflated tire. To maintain vehicle stability it may be necessary to use the vehicle's emergency stopping system.

SKID CONTROL

A skid occurs whenever the tires lose their grip on the road. This can happen in one of three ways:

a. Overbraking -- Applying the brakes too hard and locking the wheels

b. Oversteering -- Turning the wheels more sharply than the vehicle can turn

c. Overacceleration -- Supplying too much power to the wheels, causing them to spin

Steering to Get Out of a Skid

1. The bus is going straight.
2. The back end of the bus skids to the left. The bus is now moving forward on an angle. Do not brake. Use accelerator to maintain power to rear wheels.
3. Steer left, in the direction you want the bus to go.
4. The bus is back on course.
5. The back end fishtails to the right.
6. To control fishtailing in the opposite direction, countersteer right to get back on course. Repeat sequence as needed.
7. Steering control is reestablished.

UNEXPECTED HAZARDS

When you suddenly see a hazard in your direct path, you must make an immediate decision. By using the "imaginary experience" technique and by simulating some unexpected hazardous conditions, the trainee can be better prepared to react to the hazard.

In situations of this type, the driver must control the tendency to slam on the brakes. A quick decision must be made:

1. Is braking the best evasive action to take?
2. If there is a possible escape path, is there sufficient clearance to allow the bus to pass through?
3. Will the driver be able to control the steering?

Encourage the trainee to offer additional comments on what other actions should be considered.

REFERENCE	CONTENT

Some procedures to consider in the following situations:

1. Brake loss:

   Discuss with trainee how to react to loss of air or vacuum according to the braking systems used on various buses.

2. Hydraulic brakes with a vacuum booster: (Loss of vacuum occurs.)
   a. Do not panic.
   b. Downshift the transmission to help slow vehicle.
   c. Apply the service brake. More pressure is required, however. The system has lost its power assist.
   d. If necessary, apply the parking brake gradually.
3. Sudden loss of visibility: (Hood flies up.)
   a. Do not panic.
   b. Keep your sense of direction, and use the windows and mirrors.
   c. Apply brakes moderately.
   d. Activate proper turn signal.
   e. Steer out of traffic lane and stop.
4. Windshield wipers fail:
   a. Look through side windows to keep sight of the road.
   b. Apply brakes gradually.
   c. Signal your lane changes.
   d. Pull over as far as possible.
   e. Stop the bus.
5. Headlights fail:
   a. Hit the dimmer switch repeatedly.
   b. Activate the four-way hazard lights.
   c. Reduce speed, apply brake, and steer out of traffic lanes.
   d. Stop the bus and set warning reflectors (if applicable).
   e. Check fuses, replace if possible, or report the breakdown.
6. Vehicle runs off pavement:
   a. Release accelerator.
   b. Keep firm grip on steering wheel.

- c. Brake very gently.
- d. Do not attempt to return to pavement immediately.
- e. Straddle the pavement and decrease speed to 10 mph.
- f. Turn back onto the pavement where it is nearly level with the shoulder.

7. Steering failure caused by:
   - a. Loss of power steering fluid
   - b. Power steering belt broken
8. What to do when steering fails:
   - a. Apply brakes gradually.
   - b. Steer out of traffic lane and stop.
   - c. Put out reflectors (if applicable).
9. Accelerator sticks:

   If a driver is confronted with a stuck accelerator, the driver should be prepared to act quickly and intelligently. This could happen when starting the engine or it could happen in traffic when the vehicle is accelerating.

   Braking will be of limited effectiveness because the power of the engine will overheat the brakes. Shift the transmission into neutral.

   Push the accelerator hard two or three times or attempt to pull it up with your foot. If the vehicle does not slow down, turn off the engine and pull to the side of the road when safe.
10. Other hazards:
    - a. Loads projecting from the rear of vehicles
    - b. Loose objects falling from a vehicle
    - c. Doors swinging open
    - d. Animals running across roadway

DRIVER PERFORMANCE REVIEW

SKILLS LEVEL FIVE

The driver must successfully demonstrate competence in each task listed in this skills level before progressing to the next skills level. On completion of each task, the behind-the-wheel trainer or state-certified instructor is to initial and date the driver performance review.

THE STATE-CERTIFIED INSTRUCTOR'S SIGNATURE VERIFIES THE DRIVER'S COMPETENCY IN THIS SKILLS LEVEL.

INSTRUCTOR'S SIGNATURE ______________________________ **ID NO.** __________ **DATE** __________

DRIVER'S SIGNATURE ______________________________ **EQUIPMENT CODE** __________ **BRAKE CODE** _____

NOTE: Time designation should be logged in ¼-hour minimums per square.

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
NIGHT DRIVING										
1. Visual adjustment										
2. Defensive driving										
3. Intersections										
4. Single/multilane highway										
5. Hills up/down										
6. Railroad grade crossings										
7. Transmission control										
8. Engine control										
9. Brake control										
10.										
11.										
12.										
13.										
14.										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
ADVERSE CONDITIONS										
1. Rain										
2. Mud										
3. Wind										
4. Smoke										
5. Fog or mist										
6. Snow										
7. Dust										
8. Winter driving										
9.										
10.										
TIRE CHAINS										
1. Chaining Up										
UNEXPECTED HAZARDS										
1. Vehicle Control										
2.										
3.										

INSTRUCTOR'S

BEHIND-THE-WHEEL GUIDE
FOR
CALIFORNIA'S BUS DRIVER'S TRAINING COURSE

SKILLS LEVEL SIX

PASSENGER LOADING AND UNLOADING PROCEDURES

CONTENTS

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DRIVER PERFORMANCE REVIEW

REFERENCE	CONTENT

PURPOSE:

To provide each trainee with the knowledge of correct procedures to safely load and unload pupils under all conditions

OBJECTIVES:

1. Teach proper procedures of pupil loading and unloading.
2. Teach proper red light crossover maneuvers.
3. Teach the proper application of the escort procedure.
4. Enhance the trainee's ability to apply the legal and commonsense procedures for safely loading and unloading passengers.

REFERENCE	CONTENT

NOTE TO THE INSTRUCTOR:

This skills level is designed to teach proper procedures to safely load and unload passengers. Contained in this skills level are instructions on making the driver aware of situations that may arise in the loading and unloading zones; the proper way to load and unload pupils; proper procedures to perform a red light crossover, both loading and unloading; and the correct way to escort pupils. Included are suggestions and safety guidelines to help the new driver and experienced driver develop good, safe, loading and unloading habits.

An instructor should have thorough knowledge of all laws and regulations that apply to bus stops. These regulations, of course, would apply to designated stops, prohibited stops, and stopping at city transit bus stops.

The primary concern to a new driver on the first day should be, what about this stop or that stop? Does a printed sheet of paper with a list of streets and symbols such as L's, R's, C's, and X's help a new driver? Does the route sheet indicate that the bus stop dips to the right, is on rough ground, is extremely slippery when wet, or is flooded and under water at times? Does the route sheet indicate two subdivisions constructed recently, heavy traffic, both vehicle and pedestrian; additional shopping centers; and other hazards that were not there five years ago? When was the bus stop designated? Many times the route sheet does not have this information. Where does it come from? It comes from proper training and monitoring of the bus stops on a regular basis by the transportation department.

REFERENCE	CONTENT
	VEHICLE SELECTION By the time trainees reach this skills level, they should be capable of driving all vehicles in the fleet. It is very important that each trainee be familiar with the different types of vehicles. Each type of vehicle will have its own characteristics, and the driver must be prepared for this. Some of the characteristics with which the driver must contend include size of the vehicle, weight of the vehicle, different configuration of mirrors, and blind areas. These are only a few of the diversities with which a driver must learn to contend. It is vital that all drivers understand how the characteristics of these vehicles can make a difference during pupil loading or unloading situations.

REFERENCE | **CONTENT**

SCHOOL BUS STOPS

13 CCR 1227

A. Designated Stops

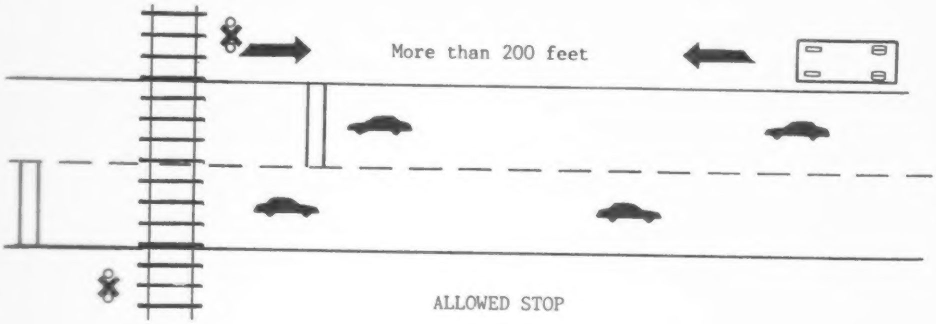
The driver shall stop to receive or discharge pupils only at a school bus stop designated by the school district superintendent or authorized by the superintendent for school activity trips.

13 CCR 1238

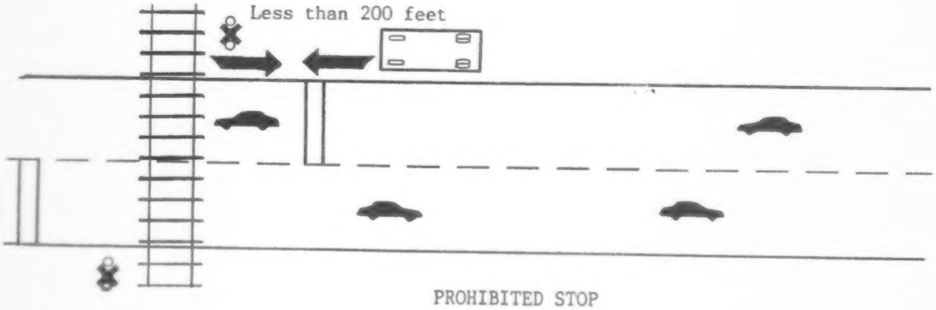
B. Prohibited Stops

A school bus stop shall not be designated at the following locations:

1. Within 200 feet of the nearest rail of any railroad crossing or grade, except at railroad stations or on highways that parallel the railroad tracks

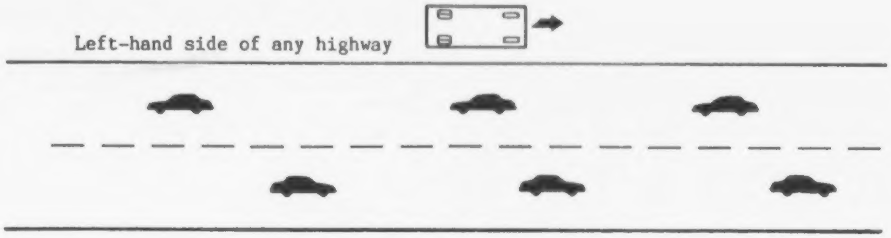


ALLOWED STOP



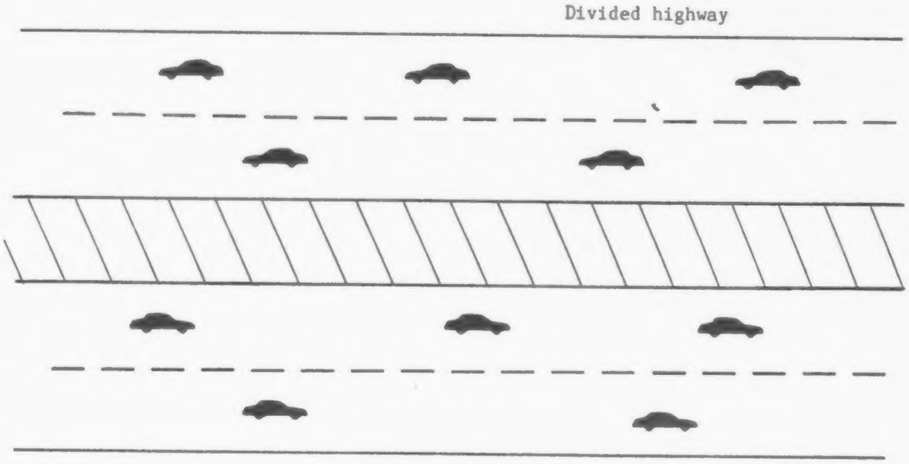
PROHIBITED STOP

2. The left-hand side of any highway


Left-hand side of any highway

PROHIBITED STOP

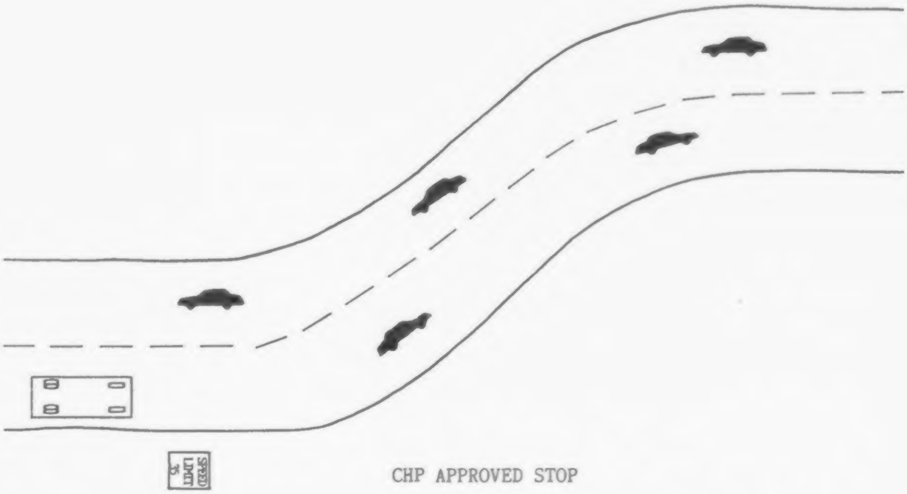
3. On a divided highway where pupils must cross the highway to board or after exiting the bus, unless traffic is controlled by a traffic officer or official traffic control signal


Divided highway

PROHIBITED STOP

REFERENCE	CONTENT
VC 22504(b)	When, in the judgment of the governing board of a school district, it is necessary for the safety of pupils being transported to and from schools to authorize a school bus stop at a place where there is not a clear view of the stop from a distance of 200 feet in each direction along the highway, such stops may be authorized by and with the approval of the CHP. The Department of Transportation, in respect to state highways, and the local authorities, in respect to highways under their jurisdiction, shall place sufficient signs along the highway to give adequate notice to motorists that they are approaching such bus stops.

REFERENCE	CONTENT
13 CCR 1238	C. Approved Stops 1. Unless approved by the CHP, a school bus stop shall not be designated at the following location: On the main-traveled portion of a highway where there is not a clear view of the stop from 500 feet in each direction along the highway and the speed limit is more than 25 mph.



REFERENCE | **CONTENT**

VC 22500.5

D. Use of Transit System Stops

Upon agreement between a transit system operating buses engaged as common carriers in local transportation and a public school district, local authorities may, by ordinance, permit school buses owned by, or operated under contract for, that public school district to stop for the loading or unloading of passengers alongside any or all curb spaces designated for the loading or unloading of passengers of the transit system buses.

School Bus

In the initial phase of the behind-the-wheel training on loading and unloading, have each trainee select what would be a suitable location for a designated stop. Stop and discuss the situation from every standpoint.

1. Is the visibility good?
2. Are there heavy traffic problems?
3. Would it be a safe bus stop?
4. Would it be suitable for a red light crossing?
5. Is property damage to residences likely to happen?
6. Are there animals nearby?
7. Are there preschool children in the area?
8. Are there commercial buildings nearby, such as liquor stores, quick stop food stores, massage parlors, pool halls, etc.?
9. Should the designated bus stop be changed? If so, why?

Every effort should be made to establish school bus stops in the safest available locations. If a situation should develop which would make a designated stop dangerous for the pupils, the supervisor should be advised so that corrective action can be taken.

Drivers will not change any bus stop without authorization from the transportation supervisor.

All stops should be made a safe distance from any obstructions which could interfere with safe loading and unloading.

In urban areas, stop the bus as close to the curb as possible. If the stop cannot be made within easy stepping distance from the curb, stop far enough away from the curb so the pupils must step down to the street and then into the bus. Do not allow pupils to jump from the curb to the bus.

USE OF TURN SIGNALS

The driver must use proper turn signals during the loading/unloading procedure. The general rule is to activate the turn signal early enough to allow five blinks of the lamps or 100 feet before the stop. The driver must allow traffic following enough time to react to the changes. The driver should cancel the turn signal as soon as the bus comes to a stop.

When leaving a stop, the driver must use caution and only activate the left-turn signal when it is safe to reenter traffic. Once traffic has cleared the vehicle, the driver should activate the turn signal and smoothly enter the correct traffic lane.

USE OF MIRRORS

When entering and exiting a loading/unloading area, the driver must be conscious of everything around the vehicle. Without mirrors this would be an impossible task. In Skills Level Two it was discussed how a driver should use the five-count mirror procedure when making turns and entering traffic. During the loading and unloading procedures, the driver must use the five-count mirror procedure in a different way. Instead of only looking for traffic, the driver now must watch the front of the vehicle, both sides of the vehicle, and the back of the vehicle for any children, pets, or movable objects that may come into the area.

The right side of the vehicle is a major concern for the driver during loading and unloading situations. The driver must remember to clear the area surrounding the vehicle prior to movement.

During Skills Level Two the mirror count for a left turn was to check the left mirror just prior to entering traffic to the left. In loading and unloading situations, the driver must still check the left side (mirrors) to be sure there is ample room to enter the traffic lane but once this has been confirmed, the driver MUST recheck the right-side mirrors to ensure that no one is in the area surrounding the bus. The bus should not be moved until this final right-side mirror check has been completed and the driver has confirmed that no one is at risk inside or outside the vehicle.

If the vehicle is not equipped with a right-side convex mirror, there may be a large area on the right side of the vehicle that cannot be seen by the driver. The driver must take extra precautions to ensure that this area is not occupied before moving the vehicle.

If the vehicle is equipped with a right-side convex mirror, remember the convex mirror distorts distance and any object in the mirror may be closer than it appears.

The following is a suggested mirror count during the loading and unloading procedures:

1. Check the right-side mirrors when exiting traffic.
2. During the procedure the driver should be monitoring all mirrors continuously.
3. Once the loading or unloading is completed, the driver does a full mirror count.
    a. Right-side mirrors for any children, adults, or animals, that are close to the vehicle

REFERENCE | **CONTENT**

b. Inside rearview mirror for any movement around and in the vehicle
c. Crossview mirror
d. Left-side mirrors for a final evaluation of traffic
e. Prior to moving the vehicle, the driver must recheck the right-side mirrors to be positive the area is clear and it is safe to move.

This type of check will help the driver ensure that the area surrounding the vehicle will be clear.

School Bus
SPAB

APPROACH

The driver must use extreme caution when approaching a school bus stop or loading and unloading zone. At no other time is the driver under more demanding situations than when entering these areas. The driver must constantly be aware of traffic and must continuously scan for pupils in these areas. The driver cannot rely on the pupils being in their designated area. When approaching these areas, there are certain procedures that are suggested for each driver to follow:

1. Be constantly aware of traffic.
2. Approach at a cautious speed.
3. Use appropriate turn signals.
4. Constantly monitor all mirrors.
5. Be aware of people around the vehicle.

At all bus stops, whether loading or unloading, the bus should be secured by placing the transmission in neutral and applying the parking brake. (However, when the driver must leave the driver's seat, the vehicle must be properly secured.) Buses should not be put into gear until all pupils have boarded and are seated. Check and recheck all mirrors before moving the bus.

PASSENGER LOADING (Right Side)

Drivers are responsible for the safe and orderly manner in which the passengers board the bus. The procedures for bus loading may vary due to the different locations of designated stops. The following information will increase safety and at the same time protect the passengers:

1. Pupil conduct at the bus stop should be the same as required on the school grounds. This means the pupils should not destroy shrubbery or property in the immediate area and they should not litter the ground with trash or papers.
2. Passengers should be at the bus stop prior to the time the bus arrives and should be at least six to ten paces from where the bus will stop. Waiting passengers should not move toward the bus until it has come to a complete stop and the door has been opened.
3. Waiting passengers should walk toward the bus in an orderly manner and board single file.
4. There is to be no shoving or scuffling while boarding or waiting to board the bus. One hand should be free to use the handrail.
5. Passengers should be seated promptly and face the front of the bus. Passengers shall not leave their seats while the bus is in motion and should have no unnecessary conversations with the driver.
6. Passengers must board the bus at the designated bus stop only.
7. Passengers should not open or close windows or emergency exits except when specifically requested to do so.

PASSENGER UNLOADING (Right Side)

One of the most important tasks a driver must safely perform is unloading passengers. Past experiences indicate that during this procedure the passengers and the driver are exposed to many hazards. Each driver should follow certain procedures for the safety of the passengers. Some of these procedures are listed below:

1. Passengers shall remain seated until the bus comes to a complete stop and the driver opens the door.
2. Passengers must face forward when leaving the bus and should have one hand free to grasp the handrail. Passengers are not allowed to jump or skip steps.
3. After leaving the bus, all passengers must move completely away from the bus and out of danger before the bus moves away.
4. The most critical time in an unloading situation is when the bus is leaving. It is extremely important that the driver account for all passengers who exited the bus and anyone else who is close to the vehicle.

DEPARTURE

Extreme caution must be exercised when a driver is preparing to depart from a bus stop or loading/unloading zone as well as when the driver is approaching the bus stop. The driver also has the added problem of passengers going in several different directions. The driver must constantly be aware of the area around the vehicle. Below are suggested procedures to help the driver safely depart from a bus stop or loading/unloading zone:

1. The driver must be sure the area is clear before placing the transmission in gear.
2. Check all mirrors carefully.
3. Check traffic.
4. Activate turn signals.
5. Recheck right-side mirrors for off-loading passengers and other pedestrians.
6. When safe, reenter traffic.

School Bus

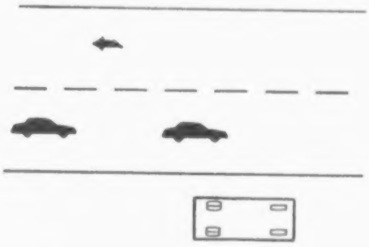
RED LIGHT CROSSOVER - LOADING (Escorted) Elementary/Secondary

Everything needs to be done the same as we have just discussed when performing a red light crossover stop, but now the driver has these additional procedures to carry out. The bus is stopped, and there are pupils who must cross the roadway to board the bus.

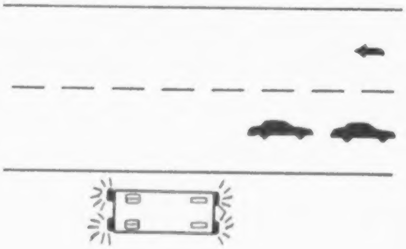
The following procedure should be used by the driver:

1. Place standard transmission in the appropriate gear.
    - A. Automatic transmissions in Type 2 buses must be placed in park position.
    - B. Automatic transmissions in Type 1 buses usually do not have a park position. If this is the case, check with the mechanic for proper securement procedures.
2. Set parking brake system.
3. Shut down the engine.
4. Remove ignition key, which must remain in the driver's possession.
5. Check all mirrors for approaching traffic. Allow traffic to clear, if at all possible. This is especially true with trucks or other buses.
6. When safe to do so, activate the red crossover lamps.

Check for approaching traffic

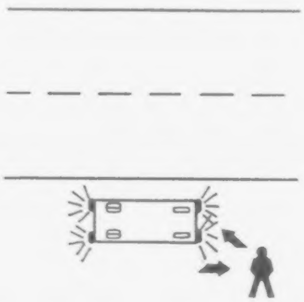


Allow traffic to clear before activating red crossover lamps

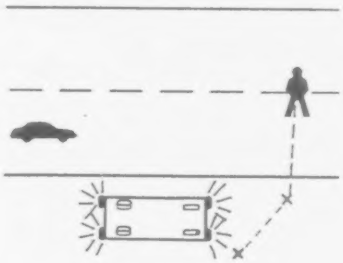


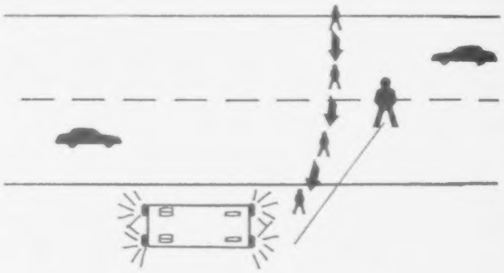
7. Open the entrance door and look in both directions on the right side of the bus before exiting.

8. Step to the right front of the vehicle; at approximately a 45-degree angle from the vehicle, move toward the roadway. When you are to the left side of the vehicle, stop. As you are moving from the right side of the vehicle to the roadway, be sure to look up and check your red flashing lights.



9. When it is safe, the driver will walk directly to the center of the roadway and, if applicable, use the hand-held stop sign. Do not trust any vehicle or any pupil. Vehicles may try to pass the bus, and pupils may break and run across the roadway before you are ready. After reaching the center of the roadway, the driver should turn toward the pupils and **TELL** them to cross the street. The driver should avoid using a hand motion, because some motorists may mistake that to mean they may pass. The pupils must always cross the street between the driver and the front of the bus.





10. When the last pupil walks past you, follow the pupil to the bus and board. A word of warning: you as a driver should know how many pupils are at each red light crossover stop. For example, if there are ordinarily five pupils who cross at a particular stop and you only see four, ask the pupils where the other person is. They may say that the parents took the pupil to school or that he or she is ill that day. If they do not know, keep looking for the pupil. You can see that pupils who are late to the bus stop can be a problem You may be almost back to the bus when the late comer will run into the roadway behind you, and this could be dangerous. Always look in all directions when you are performing a red light crossover.
11. When you reenter the bus, turn off the red lights.
12. Close the entrance door.
13. Fasten the seat belt.
14. Restart the engine.
15. Check to see that all pupils are seated properly.
16. Check all mirrors.
17. Once traffic has cleared, turn on the left directional lamp.
18. Recheck right-side mirrors before the bus moves.
19. When it is safe to do so, release the parking brake, reenter the roadway, and proceed to the next stop.

The driver should always keep in mind that loading and unloading are extremely dangerous processes and there is no room for mistakes. If an accident takes place here, it is usually fatal.

In another situation the driver may find that all pupils have already crossed the roadway before the bus arrived at the bus stop. If this is true, again, the driver should count all pupils when pulling into the stop to see if everyone is there. If not, the driver must look across the roadway for a late pupil. Pupils must be trained never to cross the roadway while the bus is approaching or is parked at the stop until the driver can provide a safe crossover that follows the steps just discussed.

REFERENCE | **CONTENT**

In the case of pupils at the ninth through twelfth grade level, it may not be necessary to have to physically escort pupils across the roadway, but the red flashing lights must be activated. Pupils must not cross the roadway until the red lights are flashing, traffic is stopped, and the driver tells them to cross.

At any bus stop always look for preschool children who may be close by. Be sure that everyone is far enough away from the bus to be out of danger.

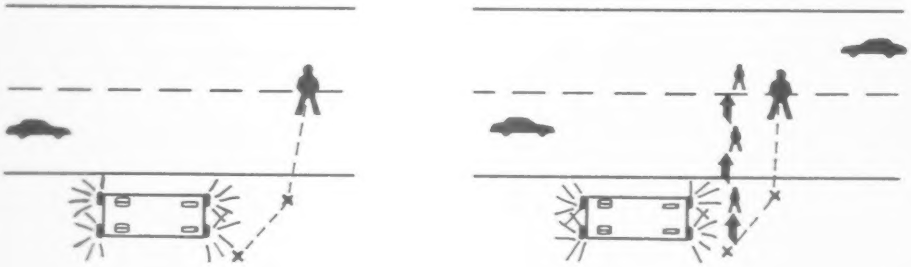
Animals sometimes can cause problems at bus stops. They are usually around the children. Be very careful. Ask your pupils to keep their pets away from the bus stop.

School Bus

RED LIGHT CROSSOVER - UNLOADING (Escorted)
(Elementary/Secondary)

The procedure is the same as loading except that when you leave the driver's seat, the last thing you want to do is open the entrance door. Be sure you are the first one out of the door. Before stepping out of the bus, look in both directions along the right side of the bus for vehicles that might be trying to pass. Bus drivers must also look for bicycles, tricycles, skateboard riders, and joggers. Drivers have been injured by stepping into the path of these problem objects.

Step forward to the right front of the vehicle and stop. Move toward the roadway at approximately a 45-degree angle from the vehicle. Be sure to check your red flashing lights. When you are to the left side of the vehicle, stop. When it is safe, move directly to the center of the roadway. Have the pupils wait on the right side of the vehicle.

REFERENCE	CONTENT
	When it is safe, TELL your pupils to cross between you and the front of the bus. Stay in that position until the last pupils have cleared the roadway, then return to the bus and immediately cancel the red flashing lights.
	
13 CCR 1227	The school bus driver shall escort across the highway or private road all pupils who attend a prekindergarten or elementary school (a public or private school that does not offer instruction beyond the eighth grade).
13 CCR 1227 School Bus	The driver may use an approved hand-held stop sign (18-inch octagonal stop sign) while escorting any pupil. If the driver uses the hand-held sign, its use is merely a reminder for motorists to stop for the school bus's red lights.
	REMEMBER IN ALL CASES, WHEN A PUPIL IS TO CROSS THE ROADWAY, THE RED CROSSOVER LIGHTS MUST BE IN OPERATION!
13 CCR 1202 School Bus	The governing board of any school district, county superintendent of schools, or equivalent private school entity or official, may adopt and enforce additional requirements governing the transportation of pupils. Such requirements shall not conflict with any law or state administrative regulations.

REFERENCE	CONTENT
	If your buses are required to make designated red light crossovers in hilly terrain, the drivers must know the procedure to curb the front wheels according to the direction of the bus.
	If other vehicles "run" your red flashing lights, follow local policy procedure on reporting the violators. Explain your local policy to each driver at this time. The driver must remember that the driver's responsibility is to the pupils crossing and to the pupils who are waiting on the bus. Remember, every time the driver leaves the driver's seat when pupils are aboard or when the driver leaves the bus, the parking brake must be securely set, the engine shut off, the transmission in the proper gear, and the ignition key removed.
13 CCR 1227 School Bus	The driver of a school bus shall ensure that all discharged pupils who must cross the highway have crossed safely and all other discharged pupils are a safe distance from the bus before setting the bus in motion. This procedure is the driver's responsibility! For example, when discharging high school and elementary school pupils who must cross the highway, the school bus driver shall escort the pupils.
	You may encounter a situation where a parent or legal guardian is waiting for a child at the bus stop. The driver is still responsible for ensuring the safety of the pupil who must cross the street. If the pupil must be escorted across the street, explain this protective procedure to the parent. If the parent or guardian refuses to have the child escorted, release the pupil directly to the parent or guardian, ensure that all discharged pupils are a safe distance from the bus and proceed. You have delivered the pupil directly into the custody of the parent or legal guardian. However, the supervisor should be alerted when this occurs.

REFERENCE | **CONTENT**

RED LIGHT CROSSOVER - LOADING (Unescorted)

Secondary Pupils Only

As a general rule pupil passengers are at the right-side bus stop prior to the arrival of the bus. However, if there are secondary pupils who must cross the street on which the school bus is stopped, the flashing red crossover lights must be activated, except at any location where traffic is controlled by a traffic officer or official traffic control signal.

The following procedure should be followed after the school bus has stopped:

1. Ensure that all pupils are a safe distance away from the roadway.
2. Ensure that traffic has cleared or is a safe distance from the bus before activating the flashing red light system.
3. Once the red light system is activated, the driver must be sure that it is safe for the pupils to cross the roadway. Pupils should be instructed not to cross the roadway until it is safe and the red lights are flashing.
4. When the pupil reaches the edge of the roadway, the pupil should stop and look in both directions, making sure the roadway is still clear and it is safe to cross.
5. All pupils must cross in front of the bus.
6. Pupil passengers are to board the bus in an orderly manner and be seated.

VC 22112
School Bus

RED LIGHT CROSSOVER - UNLOADING (Unescorted)

Secondary Pupils Only

When unloading secondary pupils from the bus, it is the driver's responsibility to ensure that all discharged pupils who cross the roadway have crossed safely. The flashing red light system must be operated whenever a pupil crosses the street on which the bus is stopped at any location where traffic is not controlled by a traffic officer or official traffic control signal.

REFERENCE | **CONTENT**

The following procedure will help ensure the pupils' safety:

1. Ensure that traffic has cleared or is a safe distance from the bus before activating the flashing red light system.
2. Once the flashing red light system is operating, make sure all traffic is clear or stopped before opening the entrance door.
3. As the pupils start to exit, have them look to the right and left before stepping off the bus.
4. After the pupils exit the bus, they are to walk approximately ten paces in front of the right bumper and stop. The pupils should be instructed to check and make sure the red lights are flashing. They must establish eye contact with the driver before walking toward the roadway. Pupils are not to cross the highway until directed to do so by the bus driver.
5. When the pupil reaches the road edge, the pupil should stop and look in both directions, making sure the roadway is still clear and it is safe to cross.
6. All pupils must cross in front of the bus unless the law allows otherwise.

School Bus
SPAB

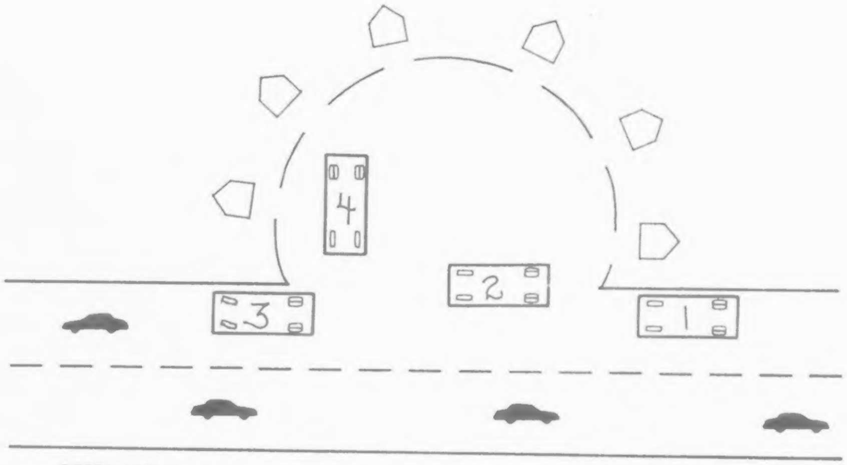
HAZARDOUS LOADING/UNLOADING CONDITIONS

(Loading or unloading at a turnaround)

1. It is best not to back the bus anywhere pupils are present without having someone on the outside of the bus directing this maneuver. In the event you have to back in any situation, use the horn before backing to warn people around the bus that you are doing so.

   Let's discuss a place where you must do a backing maneuver on the bus route in order to turn around. You are on a route in the morning picking up pupils at a turnaround point.

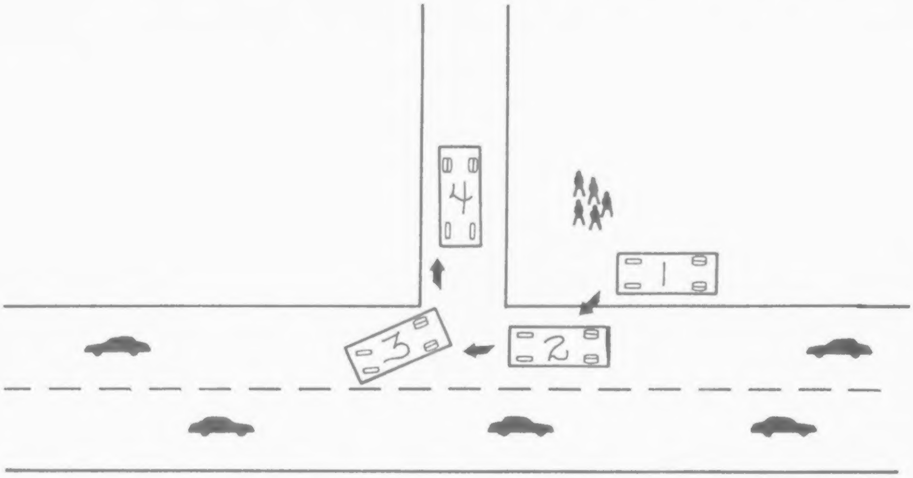
Always stop and load the pupils before turning around. This way you know where the pupils are before performing the backing maneuver. On the return route do the opposite. Do the backing maneuver first.



RESIDENTIAL A.M.
1. Loading position
2. Clear traffic
3. Back around corner
4. Complete turn around

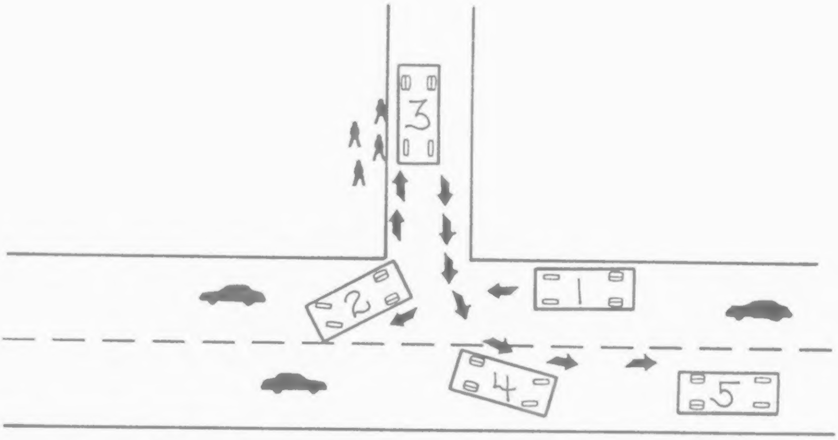
RESIDENTIAL P.M.
1. Approach
2. Clear traffic
3. Back around corner
4. Unload position

REFERENCE	CONTENT



RURAL A.M.

Stop and load students before performing backing maneuvers



RURAL P.M.

Perform backing procedures before unloading pupils

2. During inclement weather the driver will also be contending with condensation on the windows, the noise level will be higher because of heaters and defrosters, and the road conditions will not be ideal. Many times the pupils will be late getting to their stops and you may have parents waiting in cars to deliver or receive their children. This may, at times, cause congestion in the loading/unloading zone.
3. Many times pets will follow children to these areas, causing the driver problems. The driver must now clear the traffic and animals before moving. Pets may even try to enter the bus, usually to the delight of the pupils, causing even more confusion.
4. During certain hours of the day the traffic flow may be heavier than it is normally. This traffic condition may cause drivers a problem if they have not previously been exposed to this condition. If the loading/unloading zone is located in a heavy traffic flow area, drivers must be cautious and it is imperative that they realize where each pupil is exiting. When conducting either red light crossovers or escorts, the driver must continuously monitor the traffic to ensure the safety of pupils.
5. When approaching a loading/unloading zone, the driver must be constantly aware of the surrounding area. The driver must watch for suspicious happenings, such as a person waiting at a stop for several days and the children do not know the individual, or a child who is fearful of a person waiting in this area. In cases such as these, the driver must have been instructed in what to do to ensure the safety of the pupil.
6. A driver must also be aware of dangerous animals in the loading/unloading zones. The driver might notice a dog loose that usually was fenced or chained. In the rural areas the driver might notice livestock that are loose. In both of these instances, the driver must take precautionary actions to protect the pupil. This may entail keeping the child on the bus. Also, if the child shows

alarm toward an animal at the stop, it is still the driver's responsibility to keep the pupil safe. The driver must be instructed in what the local procedure is in handling this type of situation.

SCHOOL SITE LOADING/UNLOADING ZONES

It is extremely important that training for new drivers include visitations and procedural instructions for each individual school loading/unloading zone. Take your trainee to each school site, stop the vehicle, and ask the trainee for comments about the area. The following items should be discussed:

1. Number of buses at this school
2. If more than one bus, who is the lead driver or person in charge?
3. Type of schedule (staggered or single dismissal)
4. If buses are assigned parking locations, is it by bus number or route number, and what is the parking position?
5. If buses are parallel parked, they should be bumper to bumper to prevent pupils from running between the buses and into the path of another vehicle.
6. Discuss location and related problems with visitor parking and faculty parking area.
7. Discuss problems that could be created from the location of playground, bicycle racks, and so forth.
8. Discuss entrance and exits, width of roads, sharp turns, dips in the road, speed bumps, and trees and shrubbery that may obstruct or impair the vision of the driver in the loading zones.
9. Discuss the order of leaving the loading areas. The driver must carefully observe the movements of pupils walking, riding bicycles, or driving cars when leaving school.
10. If the loading zone is covered by a roof or canopy, be certain that the height of the canopy will accommodate the tallest school bus.
11. Discuss problem objects such as gateposts or swinging gates.

12. Some of the larger transit buses with automatic transmissions need more clearance from the road surface to the lower part of the transmission. This could cause the bus to get "hung up" on some driveways and cause extensive damage.

As a prospective bus driver, the trainee will have many concerns and will be wondering how some of these concerns will be solved. These concerns will include: "how will I do with the pupils," "how about the bus stops," or "how about bad weather," and many others. The driver will probably feel that the safest place will be the loading and unloading zones at the schools; however, this is usually not the case.

1. The school site may not be located so that traffic flows in only one direction. This may cause the driver frustrations and delays.
2. There may be pupils in this area who are not transported by bus and walk home. The driver must be aware of these pupils also.
3. Many times parents receive or discharge their children in private vehicles. These parents may be in a hurry and not be on the watch for the bus, so the driver of the bus must watch for them.
4. Sometimes the driver must back the bus in these zones. If this is true, explain district/company procedures to ensure pupil safety.
5. Some school site loading/unloading zones are not designed for large buses; therefore, you may encounter a situation where buses are waiting on the surface street to get into the school loading/unloading zone.

As you can see, there are many areas of concern in school loading zones. It is recommended that each school site be handled on an individual basis, because no two are alike. District policies relating to loading/unloading zones should be followed.

SPECIAL NEEDS PASSENGERS (Loading/Unloading)

NOTE:

In the event that your district or company is transporting special education pupils on buses, additional preparation and behind-the-wheel training will be necessary for a driver of those vehicles. It is important that the instructor for this part of the skills level be experienced in all areas of special education transportation. This lesson will deal with loading and unloading procedures of ambulatory passengers and wheelchair users.

Site selection is important. The curb should be wide enough to accommodate a wheelchair and driver attendant.

Lift-equipped vehicles should be used to simulate the "blind transportation exercise." The primary use of this exercise is to blindfold your trainee and let the trainee experience bus transportation from the rider's perspective; for example, wheelchair lift procedures, blind ride, and blind curbing exercise.

Inclement weather can pose a problem. However, it is better if the trainees have the opportunity to experience the unique situations that inclement weather can cause while they are in training. Therefore, do not let the weather alter your training schedule.

Special education pupils are usually "picked up" and discharged at their place of residence. Normal procedures would be followed step by step when approaching the stop and up to the point of opening the door or lowering the lift and leaving the stop.

A. LOADING

1. Ambulatory pupil procedures

   If the pupil's disability does not affect the use of legs, arms, or hands and allows walking, regular loading procedures would be followed. Do not move until the pupil is seated and the seat restraint is fastened.

   If the pupil's disability requires use of braces, crutches, or other appliances, the following procedures should be followed:

a. Boarding through front door

The driver places the transmission in first or reverse gear or park position, turns off engine and removes key, sets parking brake, unfastens seat belt, exits bus, and stands behind the pupil during entry into the bus. (The driver can assist pupil from this location.) The driver should follow the passenger to the seat and assist with the seat restraint, if necessary.

In some cases it may be necessary for an ambulatory pupil to ride the lift to enter the bus. In this case the procedures in the previous instance for securing the bus should be followed; however, the driver should ride and operate the lift with the pupil to give extra support. Secure and cover the lift immediately, check pupil's seat restraints, and follow regular procedures in leaving the stop. Be sure the lift toe guard is in proper position, and follow local policies in securing assistive devices.

b. Wheelchair procedures

After securing the bus at the side of the roadway, the driver should leave the bus, open the lift door, and proceed to lower the lift from the outside. When the lift is completely down, check the pupil and wheelchair. Place the wheelchair on the lift so the pupil faces outward. Secure wheelchair brakes. The driver will operate the lift while standing to the side and rear of the chair. Be sure the lift toe guard is in the proper position. On reaching floor level, back the pupil off the lift, raise lift to full up immediately and move pupil to regular position: Set wheelchair brakes and secure the chair to the bus with the tie-down system being used. Replace lift cover. Exit bus and close outside doors.

B. UNLOADING

1. Ambulatory pupil procedures

Pupils remain seated until the bus comes to a complete stop. If the pupil's disability does not affect the use of legs, arms, or hand and allows walking, regular unloading procedures should be followed. If pupil disability requires use of braces, crutches, or other appliances, the following procedures should be used.

a. Exiting through front door

The driver places the transmission in first or reverse gear or in park position, turns off engine and removes key, sets parking brake, removes seat belt, and helps the pupil remove seat restraint (if necessary). The pupil proceeds to front of bus (walking behind the driver). The driver will exit bus first and stand outside the bus, facing the pupil. The driver can assist pupil, if needed, as the pupil exits the bus. The driver enters the bus and follows regular procedures for leaving the bus stop.

In some cases it may be necessary for an ambulatory pupil to ride the lift when exiting the bus. In this situation the driver should secure the bus in the normal procedure. The driver should open the outside doors, then go to the seat location of the pupil and, if necessary, assist the pupil in gaining a standing position. The driver will then proceed to the lift with the pupil, remove the padded cover from the lift, remove the safety chain (if applicable), and prepare to lower the lift to floor level. The driver and pupil should then stand on the lift and the driver will operate the lift to the ground level. When the pupil is off the lift and a safe distance from the bus, the driver should raise the lift to full up, close the outside doors, reenter the bus, cover the lift, attach safety chain (if applicable), and proceed to the next stop.

b. Wheelchair Procedures

On arriving at the designated stop, secure the bus in the normal procedure. (Leave the bus in first or reverse gear or in park position, with the engine off, keys removed and in driver's possession, and parking brake set.) Remove padded cover from the lift, remove safety chain (if applicable), and prepare to lower lift to floor level. Remove tie-down belts from the pupil's wheelchair and place the wheelchair on the lift, facing outward, and set the brakes. Be sure the lift toe guard is in the proper position. Operate the lift smoothly, ride to the ground level, and remove the pupil from the lift and a safe distance away from the bus. Raise the lift to full up, close lift doors, reenter the bus, cover the lift and proceed to next stop.

When wheelchairs are removed from their positions, the tie-down belts should be removed from the floor channels and stored. This will prevent ambulatory pupils from tripping or injuring themselves on these attachments.

CONCLUSION

THE RESPONSIBILITY OF SAFELY LOADING AND UNLOADING PASSENGERS RESTS WITH THE DRIVER.

REFERENCE **CONTENT**

FARM LABOR VEHICLE SUPPLEMENT

One of the most important subjects we will study, and one of the most important maneuvers we will perform daily, is the loading and unloading of farm workers. This function creates the biggest hazard that the driver faces while operating a farm labor vehicle. The task of loading and unloading workers must be done a certain way if we are to prevent accidents.

Designated Stops

A farm labor bus driver shall stop to receive or discharge farm workers only at a safe place, not in the middle of the street. Workers should be on the right side of the street before the pickup time.

Transporting Passengers to Work

Every farm labor vehicle driver must learn to load and unload workers safely. A typical stopping and loading procedure is as follows:

1. Start slowing down as you approach the designated stop.
2. Apply brakes hard enough to light up the stop lamps so that drivers following you will know you are about to stop.
3. Apply right directional light indicators.

Refer to Skills Level Two

4. Check all mirrors to see that traffic is clear and it is safe for you to pull to the right and stop.
5. Approach workers with extreme care, giving due consideration to the surface on which you are going to stop: dry or slippery, dips sharply to the right, rough ground, and so forth.
6. Do not pull up any closer than 6 feet from the waiting passengers. Passengers should face toward the approaching bus.
7. Cancel the directional lights.
8. Place the transmission in neutral.
9. Set the parking brake system.
10. Release the clutch.

REFERENCE	CONTENT
	11. Open the front door when you are ready to board the workers. They should be advised not to move toward the bus until the door opens. For safety reasons, no passengers should be permitted to use the emergency doors.
	12. Check to make sure all passengers are properly seated; then close the front door.
Emphasize mirror use	13. Place transmission in gear, and release parking system.
	14. Check traffic; use the mirrors.
	15. Turn on the left directional lights and, when it is safe, pull back into the lane of traffic.
Questions	16. Cancel the directional lights, regain road speed, and proceed to your next stop.
	Transporting Passengers Home
	Let's reverse the above procedure and talk about taking the workers home.
	1. Start slowing down for the designated stop when you approach it.
	2. Apply enough pressure on the foot brake to light up the stop lamps so that drivers following you will know you are about to stop.
	3. Apply right directional light indicator showing that you are going to move to the right.
Refer to Skills Level Two for use of mirrors	4. Check all mirrors to see that traffic is clear and it is safe for you to pull to the right and stop.
	5. Once stopped, cancel the directional light indicator.
	6. Place the transmission in neutral.
	7. Apply the parking brake system.
	8. Release the clutch, if applicable.
	9. Check all mirrors again to see if it is safe to discharge passengers.
	10. Open the entrance door.
	11. Unload your passengers. (Advise them to use the front door for safety.)

REFERENCE | **CONTENT**

12. Do not move the bus until all passengers are a safe distance from the bus.
13. Close the entrance door.
14. Place the transmission in gear.
15. Use all mirrors again to check passengers and traffic. ACCOUNT FOR ALL PASSENGERS BEFORE MOVING THE BUS.
16. Apply left directional lights showing traffic you are going to pull to the left.
17. Release the parking brake system.
18. Check all mirrors again and, if safe, move back into the traffic lane.
19. Cancel the directional lights.
20. Regain road speed, and continue to your next stop.

Refer to Skills Level Two for use of mirrors

Backing Procedure

When you have to move a bus in reverse where workers are present, try to have someone on the outside direct you. If this is not possible, use the horn before backing to warn people around the bus that you are doing so.

What about the place where you must do a backing maneuver on a bus route in order to turn around? Let's say you are picking up workers at a turnaround point. Always stop and load the workers before turning around. This way you know where your passengers are. Then perform the backing maneuver. On the return route do the opposite. Always do your backing first, before unloading your passengers.

Driver's Vision

The driver shall not allow any person to occupy a position that will interfere with the driver's vision to the front or side or in the rearview mirrors.

REFERENCE	CONTENT
VC 24002	Unsafe Load It is unlawful to operate any vehicle which is not safely loaded.
13 CCR 1217 (a)	Seating Capacity The number of passengers in a farm labor vehicle shall not exceed the number specified by the seating capacity rating set forth in the CHP Vehicle Inspection Approval Certificate.
13 CCR 1217 (b)	Weight No more passengers shall be transported than the number whose weight, in addition to the weight of any property transported, can be carried without exceeding the manufacturer's maximum gross vehicle weight rating or the combined maximum rating of the tires supporting each axle.
13 CCR 1217 (c)	Step Wells Passengers shall not be permitted in the front step well of a farm labor vehicle while the vehicle is in motion.
13 CCR 1217 (f)	Open Doors While passengers are aboard, a farm labor vehicle shall not be put in motion until the doors are closed. The doors shall not be opened until the vehicle is stopped.
13 CCR 1216 (e)	Tools in Farm Labor Vehicles All cutting tools or tools with sharp edges carried in the passenger compartment of a farm labor vehicle shall be placed in covered containers. All other tools, equipment, or materials carried in the passenger compartment shall be secured to the body of the vehicle.

DRIVER PERFORMANCE REVIEW

SKILLS LEVEL SIX

The driver must successfully demonstrate competence in each task listed in this skills level before progressing to the next skills level. On completion of each task, the behind-the-wheel trainer or state-certified instructor is to initial and date the driver performance review.

THE STATE-CERTIFIED INSTRUCTOR'S SIGNATURE VERIFIES THE DRIVER'S COMPETENCY IN THIS SKILLS LEVEL.

INSTRUCTOR'S SIGNATURE ______________________________ ID NO. ________ DATE ________

DRIVER'S SIGNATURE ______________________________ EQUIPMENT CODE ________ BRAKE CODE ______

NOTE: Time designation should be logged in ½-hour minimums per square.

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
SCHOOL BUS STOPS										
1. Designated										
2. CHP Approved										
3. Prohibited										
PASSENGER LOADING (Right Side)										
1. Approach										
2. Procedure										
3. Departure										
PASSENGER UNLOADING (Right Side)										
1. Approach										
2. Procedure										
3. Departure										
RED LIGHT CROSSOVER (Unescorted)										
1. Loading Procedure										
2. Unloading Procedure										
RED LIGHT CROSSOVER (Escorted)										
1. Loading Procedure										
2. Unloading Procedure										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
HAZARDOUS LOADING/UNLOADING										
1. Turnaround										
2.										
3.										
SCHOOL SITE LOADING/UNLOADING ZONES										
1. Approach										
2. Procedure										
3. Departure										
SPECIAL NEEDS PASSENGERS										
1. Loading Procedure										
2. Unloading Procedure										
3. Tie-downs										
4. Lifts										
5. Ramps										
6. Wheelchair Procedures										
7. Special Equip. Securement										
8.										

INSTRUCTOR'S

BEHIND-THE-WHEEL GUIDE
FOR
CALIFORNIA'S BUS DRIVER'S TRAINING COURSE

SKILLS LEVEL SEVEN

EMERGENCY PROCEDURES

CONTENTS

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DRIVER PERFORMANCE REVIEW

PURPOSE:

To increase the trainee's knowledge, conditioning, and concentration to prevent emergency situations from going beyond the point of no escape

OBJECTIVES:

1. Teach emergency procedures for use in case of a mechanical breakdown.
2. Teach emergency procedures for use when a bus is involved in an accident.
3. Teach the description and use of emergency equipment on buses.
4. Teach procedures for use in an emergency evacuation.

NOTE TO THE INSTRUCTOR:

This skills level covers the procedures recommended for use in the event of an emergency. The instructor should keep in mind that each emergency presents different conditions; therefore, the sequence of procedures suggested may not be practical in every case. In some cases good common sense will be the rule. The instructor needs to have operational policies regarding emergency procedures for critical situations for use in instructing and explaining to the trainee all operational policies. Good policies, rules, and procedures establish a flow of communications between the board, administration, supervisors, bus drivers, and parents. This communication is founded on a thorough understanding of the laws, policies, and procedures by all who work with them and to whom they apply.

REFERENCE	CONTENT
	EMERGENCY PROCEDURES - GLOSSARY OF TERMS
	CRITICAL SITUATION
	Any situation which may result in a collision
State level	LAW
	A requirement that has been passed by a legislative body (state legislature) and signed by the chief executive (Governor); for example, the Vehicle Code (VC).
	ORGANIZATIONAL POLICIES
	A. Board policies
Local Level	Board policies are general principles or guidelines for the operation of the organizational system developed by or at the request of the board within an organization.
	B. Administrative Rules or Regulations
	Administrative rules or regulations are further rules for the operation of the organization, developed by the administrative and supervisory staff of the organization. They are designed to implement board policies.
	C. Procedures
	Procedures are the "how to" element in the polices, rules, and procedures sequence. Usually developed by the first-line supervision in consultation with the people actually driving the vehicles, they outline the accepted methods of day-to-day operation.
	POLICY
	A course of action, guiding principle, or procedure adopted by an authoritative body and considered to be expedient, prudent, or advantageous. Policies are principles or procedures that one is expected to follow and should follow, but they are not absolutely mandated as a law or rule.

REFERENCE	CONTENT

RECOMMENDATION

A statement that gives advice or counsel. Any organization or individual might recommend some action. It is strictly advisory. It is not required.

RULES AND REGULATIONS

Describe a requirement adopted by an executive department. The Legislature establishes a program and then gives an appropriate executive department the authority to establish rules for carrying out the program. A definite procedure must be followed when adopting administrative rules. When adopted, the rules have the same effect as though they were laws. They are also requirements that must be obeyed; for example, the California Code of Regulations (13 CCR or 5 CCR).

REFERENCE	CONTENT

VEHICLE SELECTION

Within this skills level it is advisable to have the trainee learn and develop emergency procedures for all different types of vehicles that may be operated. These vehicles can be equipped with automatic or standard transmissions. It is essential that the vehicle(s) to be driven are in safe operating condition and are equipped as required by law and regulations.

SITE SELECTION

The selection of a training site for Skills Level 7 will be different than any of the previous skill levels because of the type of training being given. One option for this skills level could be the transportation facility. Most of the training is done with the vehicle stationary and the engine shut off. Very little movement is required of the vehicle.

Another option is to select a site that offers a real-world environment. If this option is chosen, locate stretches of road with minimum traffic, such as deserted subdivisions, industrial parks, or country roads. Be careful in this selection, because trainees will learn faster when they do not have to compete with too many hazards in the driving environment.

EMERGENCY HAZARD FLASHERS

Emergency flashers should be used as warning devices. They should be activated when a need exists to draw other drivers' attention to the vehicle. For example, they can be used whenever a vehicle breaks down on the roadway.

VC 25251 (a)

1. When disabled or parked off the roadway but within 10 feet thereof, turn signal lamps may be used as warning lights, if the front and rear turn signal lamps at each side are being flashed simultaneously.

REFERENCE | **CONTENT**

VC 25251 (b)

2. Turn signal lamps must be used as warning lights whenever a vehicle is disabled upon the roadway and the vehicle is equipped with a device to automatically activate the front turn signal lamps at each side to flash simultaneously, and the rear turn signal at each side to flash simultaneously, if the device and the turn signal lamps were not rendered inoperative by the event which caused the vehicle to be disabled.

VC 25251 (e)

3. Hazard warning lights may be flashed in a repeating series of short and long flashes when the driver is in need of help.

Crime Alarm Lights

Crime alarm lights may be installed on buses operated either by a public agency or under the authority of a certificate of public convenience issued by the Public Utilities Commission. These lights shall be activated only when a crime is in progress or has just been committed on board the bus.

EMERGENCY REFLECTORS

School Bus
SPAB

The placement of reflectors will usually be determined by the actual position in which the bus is stopped and by the types of roadways. Every one of these situations may require a different placement of reflectors. Simulate breakdowns and have the drivers actually pace off the required distances, depending on the situation, and place the reflectors in the proper location. It is important that trainees understand thoroughly all current laws and regulations.

Emergency Reflectors Placement

1. Determine the location of the reflectors within the training vehicle.

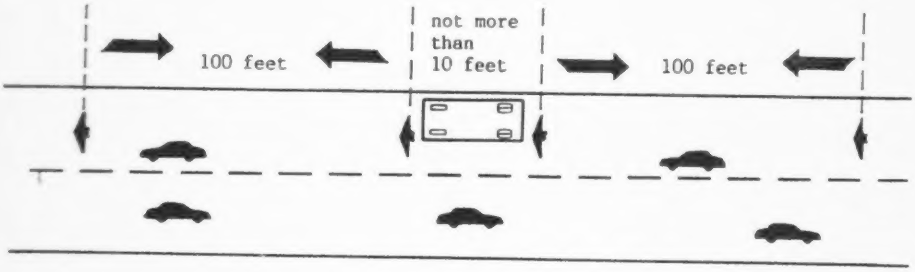
II. Instruct the trainee that every vehicle subject to VC 25300, if operated during darkness, shall at all times be equipped with at least three red emergency reflectors and shall be maintained in good working condition.

III. Instruct the trainee that when a vehicle is disabled on the roadway during darkness, reflectors shall be placed immediately as follows:

A. One at the traffic side of the disabled vehicle, not more than 10 feet to the front or rear thereof

B. One at a distance of approximately 100 feet to the rear of the disabled vehicle in the center of the traffic lane occupied by such vehicle

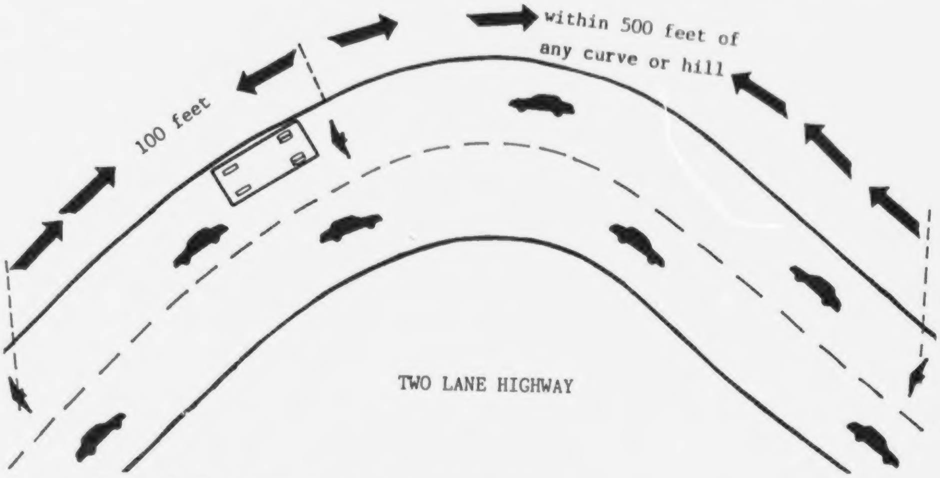
C. One at a distance of approximately 100 feet to the front of the disabled vehicle in the center of the traffic lane occupied by such vehicle



TWO LANE HIGHWAY

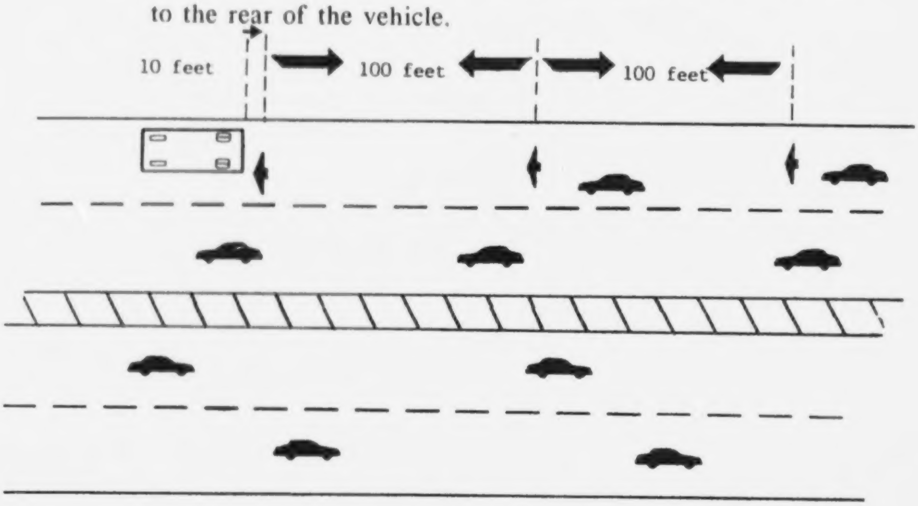
REFERENCE	CONTENT

D. If disablement of any such vehicle occurs within 500 feet of a curve, crest of a hill, or other obstruction to view, the driver shall so place the reflectors in that direction to provide ample warning to other users of the highway, but in no case less than 100 nor more than 500 feet from the disabled vehicle.



TWO LANE HIGHWAY

E. If disablement of the vehicle occurs on any roadway of a divided or one-way highway, the driver must place to the rear and in the center of the lane occupied by the stalled vehicle one reflector at a distance of approximately 200 feet, a second refelctor at a distance of approximately 100 feet, and a third reflector at the traffic side and not more than 10 feet to the rear of the vehicle.



DIVIDED OR ONE WAY HIGHWAY

IV. On completion of the placement instruction, point out the following conditions that also apply to the use of emergency reflectors. They are:

A. When any such vehicle is disabled or parked off the roadway but within 10 feet thereof during darkness, warning reflectors of the type specified in VC 25300 shall be immediately placed by the driver as follows: one at a distance of approximately 200 feet, one at a distance of approximately 100 feet to the rear of the vehicle, and one at the traffic side of the vehicle not more than 10 feet to the rear of the vehicle. The reflectors shall, if possible, be placed between the edge of the roadway and the vehicle but in no event less than 2 feet to the left of the widest portion of the vehicle or load thereon.

B. Until the reflectors required by VC 25300 can be placed properly, the requirements of the law may be complied with temporarily by either placing lighted red fusees in the required locations or by the use of turn signal lamps, but only if front turn signal lamps at each side are being flashed simultaneously and rear turn signal lamps at each side are being flashed simultaneously.

C. The reflectors shall be displayed continuously during darkness while the vehicle remains disabled on the roadway or parked or disabled within 10 feet thereof.

D. The placement of reflectors does not apply to a vehicle under either of the following circumstances:

1. Parked in a legal position within the corporate limits of any city
2. Parked in a legal position on a roadway bounded by adjacent curbs

REFERENCE **CONTENT**

E. In addition to the reflectors specified in VC 25300, an emergency warning sign or banner may be attached to a vehicle which is disabled on the roadway or which is parked or disabled within 10 feet of a roadway.

Have trainee demonstrate all placement procedures.

School Bus
SPAB
Farm Labor

USE OF FIRE EXTINGUISHERS

There are different types of fires which must be extinguished differently; furthermore, fire extinguishers are classified by the type(s) of fires they are designed to combat. During any fire, time is of the essence. There is no time to be fumbling around trying to find the fire extinguisher or figuring out how to operate it. It is important that the trainee:

1. Know the location of the fire extinguisher.
2. Know how to operate the extinguisher.
3. Know how to fight the fire.
4. Be aware of the regulations regarding fire extinguishers.

13 CCR 1242
School Bus

School Bus Fire Extinguisher

At a minimum, school buses shall carry one or two fire extinguishers having an aggregate rating of not less than 8B:C, provided each extinguisher is rated at not less than 4B:C. A wheelchair school bus shall be equipped with two fire extinguishers, each one rated at not less than 8B:C. One is to be placed in the driver's compartment and the other at the wheelchair-loading door or emergency exit.

SPAB
13 CCR 1242

SPAB Fire Extinguisher

Every SPAB shall be equipped with one fully charged dry chemical or carbon dioxide fire extinguisher having at least a 4B:C rating.

REFERENCE | **CONTENT**

Farm Labor
13 CCR 1242

Farm Labor Vehicle Fire Extinguisher

Every farm labor vehicle shall be equipped with one fully charged dry chemical or carbon dioxide fire extinguisher having at least a 4B:C rating.

Fire Extinguisher Operation

1. Remove the extinguisher from its mounting bracket.
2. Hold the extinguisher in a vertical position or upright position.
3. Pull the pin, using a twisting motion, and break the seal.
4. If possible, stand upwind from the burning material to avoid smoke and heat.
5. Squeeze the handle to discharge chemicals at the base of the flame, using a side-to-side motion.
6. Turn the extinguisher on and off as desired to control the fire.
7. Do not walk into unburned material that could catch fire in a backflash and cause injury to you.

13 CCR 1242

8. Regardless of the extent of use, recharge or replace the extinguisher as prescribed in the regulations.

The trainee must be able to demonstrate this basic procedure and be coordinated with it before continuing.

NOTE:

Show the sample extinguisher and explain what to check and/or how to operate it. Quote any policies on usage and maintenance of this equipment.

MECHANICAL BREAKDOWN

The risk of roadside accidents increases substantially on interstate highways and rural roads with high-speed traffic. It is worse at night when depth perception is reduced and drivers have a tendency to "lock in" on the taillights ahead and to follow them without paying attention to vehicle speed. The instructor's responsibility is to ensure that the trainees understand this danger and the steps they must take to minimize any danger for themselves and their passengers.

REFERENCE

CONTENT

Because the circumstances of each mechanical breakdown are different, the sequence of procedures to be followed may vary; but the following general procedures are recommended to the trainee. Remember, explain all local policies applicable to mechanical breakdown.

13 CCR 1226
School Bus

Instruct the following procedures for mechanical breakdown:

1. When a pupil is aboard, the driver shall not leave the driver's compartment without first stopping the engine, effectively setting the parking brake, placing the transmission in the appropriate gear, and removing the ignition keys, which shall remain in the driver's possession.
2. Activate the emergency hazard flashers and place the reflectors in an appropriate position, if conditions warrant.
3. If possible, request two different passing motorists to notify operations officials of the vehicle's location and expected mechanical failure. The driver should provide the assisting motorists with the proper number to call. The driver should remain with the vehicle.
4. Keep the passengers on the vehicle in most cases. Passenger safety is the highest priority. Safety conditions may warrant evacuation of the vehicle. If the passengers are evacuated, the driver should give precise instructions as to where the passengers should relocate and what they should do.
5. On arrival, the relief vehicle should drive to the front and pull in line and as close to the disabled vehicle as possible.
6. Drivers of both vehicles should activate the hazard lights prior to transferring passengers from one vehicle to the other.
7. The driver of the disabled vehicle shall open the door, get out of the vehicle, and safely direct passengers to the relief vehicle.
8. The driver of the relief vehicle should open the door, get out of the vehicle, and stand in a position to assist passengers in safely loading the vehicle.

REFERENCE	CONTENT

9. The driver of the disabled vehicle shall instruct passengers to board the relief vehicle in an orderly manner, staying in single file.

During training, simulate some accident scenarios and have the trainee demonstrate the above procedure following local policies.

NOTE:

In any discussion of accidents, prevention must be the key word. Strict compliance with all laws and regulations of vehicle operation, plus the knowledge and application of the practices of defensive driving, will eliminate the causes of most accidents. The trainer's responsibility is to instruct the legal obligations and other immediate responsibilities (local operational policies) to the trainee regarding bus accidents.

Because the circumstances of each bus accident are different, the sequence of procedures to be followed may vary; but the following general procedures are recommended instruction to the trainee. Remember, explain all local policies applicable to bus accidents, required by your organization.

ACCIDENT PROCEDURES

1. Evaluate the scene.
2. 13 CCR 1226 — The driver must properly secure the vehicle before leaving the driver's seat.
3. Remain calm and reassure the passengers.
4. Account for all passengers when a check is made for injuries. If passengers are injured, follow the recommended first-aid procedures. Make a passenger seating chart.
5. Passengers should be kept on the vehicle unless safety hazards warrant evacuation. Safety of passengers is the highest priority. If evacuation is deemed necessary, the recommended procedures for evacuation should be followed.
6. Request the assistance of a passing motorist in notifying the state highway patrol or another legal investigating officer, and in notifying the local operation's administrators of the accident and its location.

REFERENCE	**CONTENT**
	7. Protect the scene from further damage: a. Check for fire or the possibility for fire. b. Evacuate when the vehicle is in a dangerous position. c. Activate the emergency hazard flashers and place the reflectors in designated locations (if applicable). d. Headlight beams should be directed on the vehicles involved in the accident, if the accident occurs at night.
13 CCR 1219	8. Reporting - Whenever any bus accident occurs, the driver shall: a. Stop at the scene. b. Immediately notify or cause to be notified the California Highway Patrol. **NOTE:** Within certain cities, police departments handle the investigations of school bus accidents and submit a written report to the California Highway Patrol. c. Notify your employer. d. Notify the school district for which the bus may be operated under contract.
VC 20001	9. Drivers in an accident are required to give their names, addresses, drivers' license numbers, and vehicle information to others involved in the accident. The bus driver should also get names and addresses of witnesses to the accident. 10. Facts relating to the accident should be discussed only with investigating officers or operations officials. 11. When a vehicle is rendered unsafe for continued operation because of accident damage or mechanical failure, the driver shall discontinue use of the vehicle and notify the motor carrier of these circumstances. The driver or motor carrier shall then make the necessary arrangements to have the passengers safely transported to their destinations.

REFERENCE	CONTENT
	Before continuing, consider the trainee's response to accident situations; especially the approach to complex situations. Evaluate whether or not the preparation and approaches used reduced the problems the trainee encountered during this lesson. Verbal and performance demonstrations of these procedures will verify the trainee's comprehension of this skills level.
	BUS EVACUATION INSTRUCTION
5 CCR 14102 School Bus	Each school year the governing board shall provide and require each pupil who is transported from home to school in a school bus to receive appropriate instruction in safe riding practices and emergency bus evacuation.
	Prevailing conditions may warrant the evacuation of passengers from a bus. When evacuation is deemed necessary by the driver, it is imperative that certain procedures be followed in conducting the evacuation. To expedite evacuation and eliminate confusion and disorder, the driver should use the evacuation procedures hereinafter described.
Use latest edition of Bus Evacuation Guide	Once the trainees have mastered the knowledge and evacuation procedures in this skills level, they will have a good foundation they can rely on the rest of their career.
	It is the instructor's responsibility to provide a positive and successful learning experience for the trainee. The instructor is expected to demonstrate, under simulated conditions, each evacuation procedure used by the organization. This kind of experience allows the trainee to learn what correct procedures are and what is expected of a driver in the event it ever becomes necessary to evacuate a bus.

The following guides should be incorporated in the techniques of instruction:

1. Explain and demonstrate each procedure.
2. Give the reasons for each procedure.
3. Use simple, clear terminology.
4. Stress key points.
5. Do not explain too much at one time and confuse the trainee.
6. Give the trainee a chance to ask questions and offer feedback.
7. Individualize the training efforts. People learn at different rates.
8. Test the trainees at every step and let them know how they are doing. Maintain a positive and helpful attitude. Make the learning experience a success.

In order to get the most benefit out of emergency evacuation training, the trainees should fully understand their role. Deciding when to evacuate needs to be presented by the instructor by introducing trainees to the specific demands that they will encounter.

The critical situations listed below are examples of when a bus should be evacuated:

1. There is a potential for a fire to occur or there is evidence of:
    a. A ruptured fuel tank or leaking fuel line
    b. An electrical fire
    c. Presence of smoke
    d. Hot tires that may catch fire
    e. Brake fires, resulting from excessive use, which causes linings to overheat and ignite
    f. Cargo fire or passengers igniting flammable substance within passenger compartment
2. A vehicle is parked or disabled off the roadway in a hazardous position.

3. A vehicle is disabled on a highway in a hazardous location because of mechanical failure or accident
4. A vehicle is disabled on a highway within a curved portion where visibility is restricted in either direction
5. A vehicle is disabled on railroad tracks.
6. A vehicle is disabled during adverse weather, such as fog, rain, snow, smoke, or dust, reducing the visibility of other vehicles traveling the roadway, and the vehicle is close to the roadway as to pose a hazardous situation.
7. A vehicle is overturned and potential hazards are present.

The instructor should ask questions to review the trainee's knowledge and grasp of the material being taught. The main purpose is to evaluate the lesson and the performance of the trainee before moving to the next block of instruction.

NOTE:

A decision should be made on numbers 3, 4, and 6. It may be safer to keep passengers inside the bus if there is not a life-threatening emergency present.

DRIVER PERFORMANCE REVIEW

SKILLS LEVEL SEVEN

The driver must successfully demonstrate competence in each task listed in this skills level before progressing to the next skills level. On completion of each task, the behind-the-wheel trainer or state-certified instructor is to initial and date the driver performance review.

THE STATE-CERTIFIED INSTRUCTOR'S SIGNATURE VERIFIES THE DRIVER'S COMPETENCY IN THIS SKILLS LEVEL.

INSTRUCTOR'S SIGNATURE ______________________________ **ID NO.** __________ **DATE** __________

DRIVER'S SIGNATURE ______________________________ **EQUIPMENT CODE** __________ **BRAKE CODE** _____

NOTE: Time designation should be logged in ¼-hour minimums per square.

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
EMERGENCY REFLECTORS 1. Two-way roadway										
2. Divided highway										
3. Hill/curve										
FIRE EXTINGUISHER USE 1. Engine compartment										
2. A fire										
3. B fire										
4. C fire										
5. D fire										
MECHANICAL BREAKDOWN										
ACCIDENT PROCEDURE										
1.										
2.										
3.										
5.										

TASK	TIME					TOTAL TIME	COMPETENT		INSTRUCTOR'S INITIALS	DATE
							YES	NO		
BUS EVACUATION 1. Front door										
2. Side door										
3. Rear door										
4. Multi-doors										

INSTRUCTOR'S

BEHIND-THE-WHEEL GUIDE
FOR
CALIFORNIA'S BUS DRIVER'S TRAINING COURSE

SKILLS LEVEL EIGHT

FINAL APPRAISAL

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DRIVER SKILLS FINAL APPRAISAL

REFERENCE	CONTENT

PURPOSE:

To appraise objectively the level of performance and competency of a driver

OBJECTIVES:

1. Design an appraisal course.
2. Determine the competency and ability of an individual to drive a bus and perform the required duties of a professional bus driver.

NOTE TO THE INSTRUCTOR:

The responsibility to verify competency of an individual to drive a bus that transports passengers is awesome. This involves a total understanding of all skill levels and the importance in preparing an individual to become a competent driver. It involves designing an appraisal course that is complete and more challenging than the CHP or DMV testing course for driver certification.

It involves establishing requirements that are tough but fair. It involves the understanding of a final appraisal instrument and its use.

Most of all it involves instructors who are dedicated to the safety of the public and who will make honest and objective decisions concerning driver competency. When all training is completed and it is time to decide if this person is ready to transport passengers, weigh all the facts and ask yourself, is this person ready? That decision is yours.

VEHICLE SELECTION

A vehicle should be used in the final appraisal so that the special driver's certificate is not restricted. This vehicle usually is one of the largest in the fleet and is equipped with a standard transmission and air brakes. The operational needs of operations are different, so adapt accordingly.

DESIGNING THE FINAL APPRAISAL COURSE

The purpose of the appraisal course is to challenge the drivers and place them in realistic situations that they may encounter as a bus driver. You must find out, when faced with challenging situations, if the driver can make proper decisions on the basis of his or her previous training and knowledge. The test course should be designed to show competency at each skills level, and the appraisal of each task should be complete enough to verify overall competency. The course should also include realistic behavior management problems which will test the driver's ability to handle passengers and cope with the stress that is created. The final driver appraisal shall be administered by a state certified instructor , preferably by a state certified instructor uninvolved with any of the driver's behind-the-wheel training.

FINAL APPRAISAL/DEVELOPMENTAL PLAN

The final appraisal shall begin with the complete vehicle inspection and include an appraisal of each skills level and the tasks contained therein. The appraisal instrument is designed to determine driver competency at each skills level. The appraisal will also identify the skills level at which further development is needed.

DRIVER SKILLS FINAL APPRAISAL

SKILLS LEVEL EIGHT

The driver must successfully demonstrate competence in each skills level listed on the final appraisal. On successful completion by the driver, the final appraisal must be signed by the state-certified instructor administering the appraisal.

THE STATE-CERTIFIED INSTRUCTOR'S SIGNATURE VERIFIES THE DRIVER'S COMPETENCY IN THIS SKILLS LEVEL.

INSTRUCTOR'S SIGNATURE ______________________ ID NO. ______ DATE ______

DRIVER'S SIGNATURE ______________________ EQUIPMENT CODE ______ BRAKE CODE ______

Total time of final appraisal ______________

SECTION	COMPETENT		FURTHER DEVELOPMENTAL NEEDS (EXPLANATION)	DATE
	YES	NO		
GENERAL INFORMATION 1. Vehicle Inspection 2. 3.				
SKILLS LEVEL ONE Basic Vehicle Familiarization and Movement				
SKILLS LEVEL TWO Precision Training in Vehicle Movement and Driving Fundamentals				
SKILLS LEVEL THREE Transmission Control and Shifting Procedures				
SKILLS LEVEL FOUR General Defensive Driving Techniques				
SKILLS LEVEL FIVE Specialized Defensive Driving Techniques				
SKILLS LEVEL SIX Pupil Loading/Unloading Procedures				
SKILLS LEVEL SEVEN Emergency Procedures				
SKILLS LEVEL EIGHT Final Appraisal				